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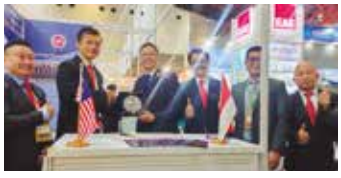

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Plugs, Socket-Outlets for Industrial Purposes

LS – TYPE Plugs and Socket-Outlets for Entertainment


Plugs


Couplers

Inclined flush mounting sockets - Watertight IP67


PEW...PI 16A-32A 63A-125A

Couplers - Watertight IP66/IP67


16A-32A

Wall-mounting plugs - Watertight IP67


PEW...SM 63A

Plugs – Watertight IP66/IP67


PEW...SV 16A – 32A

Interlocked switched socket-outlets with screw type fuse carrier aluminium enclosure – splashproof IP55


(PK...PB5 125A)

Interlocked Switched Socket-Outlets


TM...SP

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IP44


PE...PP 16A-32A


PE...PQ 16A-32A


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IP67


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Inserts, 4 poles + connection with spring terminal

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From The Editor's Desk

Congratulations to the newly-elected President of TEEAM, Ir Chang Yew Cheong, and the New TEEAM Council for the year 2023-2025! The TEEAM AGM and the Elections of the New Council were successfully held on 28 May 2023 at the Kuala Lumpur Golf & Country Club (KLGCC).

The activities participated by TEEAM and members had encouragingly grown over the years, in number and scope. Exciting snapshots of these activities are widely covered in this issue.

The TEEAM Series of E&E Technical Talks had also been successfully kicked-off and we sincerely hope that it will be a good and rewarding platform for timely dissemination of crucial technical knowledge as well as networking gems -- both for members and non-members of TEEAM. The next important Technical Talk has been scheduled for 21 November 2023 at TEEAM's HQ. All are highly encouraged to attend these important industry-centric E&E meet-ups.

The Malaysian Government had officially launched the New Industrial Master Plan 2030 (NIMP 2030) on 1 September 2023 at MITI Tower, Kuala Lumpur. Electric Vehicle (EV) as a key growth-driver is catalysed and MBP (Mission-Based Project) 3.2 provides opportunities galore for SMEs to be upscaled to participate in the EV value chain -- as Component Manufacturers, Charging Infrastructure Manufacturers and EV Service Providers.

TEEAM's committed and dedicated participation in local as well as foreign Exhibitions has been on a praiseworthy growing scale. This is indeed a very good sign for our E&E industry.

The Malaysian CIE (MyCIE) successfully sent a delegation to participate in the 30th Quadrennial Session of the CIE in Ljubjana, Slovenia, from 15 to 23 September 2023.

With the business horizon progressively brightening up after the onset of the unprecedented COVID-19 pandemic scourge, a new dawn of exciting and promising golden opportunities are now re-emerging. Let's all at TEEAM be always on the lookout to pro-actively participate in these profitable opportunities!

Here's to everyone's success!

Regards,

Ir Chew Shee Fuee, KMN
Editor
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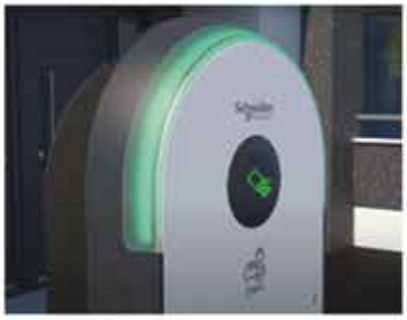

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TEEAM 70th Platinum Anniversary Dinner 2023

TEEAM celebrated the 70th anniversary of its founding, a time to reflect proudly on our seven decades of promoting orderly growth and development of the E&E industries. A grand Gala Dinner themed "Powering The Nation's Growth" was held on 18 February 2023 at the One World Hotel in Petaling Jaya, Selangor. The event joyously welcomed 1,120 members and guests (including overseas members). It was a night of convergence of the E&E trade and industry people, various representatives from Government offices/agencies/statutory bodies, important NGOs, Embassies, Commercial Officers of Trade Offices, and guests from the Asia Pacific Electrical Contractors Associations.

TEEAM was honoured to have MITI's Deputy Secretary-General (Industry), YBhg. Dato' Sri Norazman Ayob, to grace our Dinner, as the Guest-of-Honour. The celebration began with an LED Lion Dance performance. The evening saw lots of activities to celebrate and entertain, such as LED Poi performance, a powerplay combination of violin and cello, cake-cutting ceremony, star vocal performance and the Grand Lucky Draw session.

In his Welcome Address, the Dinner Organising Chairman, Ir. Chang Yew Cheong, who is also the then TEEAM Deputy President, firstly apologised and explained that the Dinner was originally scheduled for 2020 but had to be postponed due to the pandemic, followed by the General Elections, GE15. He then thanked his Organising Committee and Secretariat Staffs for their efforts in organising the Grand Dinner, which saw such a record turnout! He expressed his heartfelt thanks to the exclusive Diamond Sponsor, Toyota; the Platinum Sponsors, EITA Resources Berhad, Hong Seng Power Sdn Bhd, Informa Markets Malaysia Sdn Bhd & United Overseas Bank Berhad, and all other generous Sponsors, for their tremendous support. Special thanks were also recorded to overseas guests from Hong Kong, Singapore, Philippines, Indonesia, Australia and UK for their gracious presence. He also highlighted that a Coffee Table Book had been produced to commemorate TEEAM's 70th year Anniversary. The Coffee Table Book encapsulates the illustrious 70-year journey of TEEAM's dynamic transformation, growth, and resilience.

The then TEEAM President, Dr. Siew Choon Thye, in his Opening Speech, highlighted that with the support of MITI's ETA (Empowerment Trade Association) Grant, TEEAM has been entrusted to host three Overseas Export Missions, exhibiting with our Manufacturing and Services members, in Vietnam, Indonesia, and the Philippines. The results from these missions are positively overwhelming. In spite of the globally-affecting China and US trade issues and Ukraine-Russia conflict issues, ASEAN or even ASIA are the economies of growth. We look forward to continuous support from MITI to enable us to continue progressing with this ETA initiative that will certainly help to accelerate our E&Es, especially so to the SMEs' export capabilities.

The Government can support SMEs through various means, such as tax incentives, export rebates, promotions, and by attracting more direct domestic investments. This will help overcome these challenges and not only benefit the local SMEs, but also the wider economy, supply chain, and manufacturing industry. This will make the country more competitive globally and attract more Foreign Direct Investments (FDIs), positioning Malaysia as a regional hub and global gateway. As we move forward, we hope that the Electrical and Electronics sector will have more incentives, especially for SMEs to grow, with supportive policies that will enable us to reach our full potential. In this new era of growth;-- Digitalization, ESG; and Automation will play critical roles in powering our industry forward. We believe that these trends will not only drive growth, but will also help to make our industry more sustainable and efficient.

He concluded his speech by stating that "As we gather here today, it is our mission that we continue to work together to build a brighter future for the Electrical and Electronics industry in Malaysia. With the theme of "Powering the Nation's Growth", we are confident that we will be able to achieve great achievements and establish ourselves as a dominant industry in the country."

Guest of Honour, YBhg. Dato' Sri Norazman Ayob, conveyed the greetings of YB Senator Tengku Datuk Seri Utama Zafrul Tengku Abdul Aziz, Minister of Investment, Trade & Industry, who was unable to attend due to another urgent commitment. In his Keynote Address, YBhg. Dato' Sri Norazman Ayob, highlighted that as the country faces an issue regards to talent acquisition across all industries, the Government had eased conditions for hiring foreign workers in five critical industries — Manufacturing, Construction, Plantations, Agriculture and Food & Beverage. The pro-active plan would allow employers to hire foreign workers from 15 source countries based on their capabilities and needs without having to fulfill quotas or employment pre-conditions. The relaxed conditions were not permanent, but only a temporary measure to meet the country's economic and development needs. The Deputy Secretary-General also stressed that apart from a shortage of low-skilled foreign workers, Malaysia is also experiencing a shortage of talent where the local graduates do not meet the stringent requirements of the industry. In this regards, MITI will work together with the Manufacturing Sector, Public Universities and TVET institutions across the country to provide the talent that the sectors will require.

Ir. Chang Yew Cheong
Dinner Organising Chairman

Dr. Siew Choon Thye
The then TEEAM President

Dato' Sri Norazman Ayob
MITI Deputy Secretary-General (Industry)

He urged local companies to equip themselves with good labour practices and ESG to expand their market access, secure funding, as well as to integrate into the regional and global supply chains. The European Union (EU) is a key player in global emission reduction efforts, and has recently implemented the Carbon Border Adjustment Mechanism (CBAM). The CBAM would require importers to pay for the carbon emissions associated with the production of goods imported into the EU, using the same methodology as applied to EU producers, under the EU Emissions Trading System (ETS). CBAM was devised to address the issue of carbon leakage, which is when companies re-locate their operations to countries with lax environmental regulations, to avoid the cost of complying with their home country's climate policies.

MITI is currently developing a National Policy on ESG for the Manufacturing Sectors which will include four main elements, namely, ESG standards, financial support and incentives, capacity building, and market mechanisms including carbon trading and carbon pricing. He said that the policy is expected to be ready by the third quarter or by the end of 2023. MITI also decided to prioritise Domestic Direct Investments (DDIs), which is equally important in contributing to the growth of Malaysia's GDP. Therefore, domestic investors with good business models who require some support by way of equity and financing are encouraged to approach MITI for support. The Government has made a firm commitment to strategically develop the Automotive Industry, particularly the EV sector. MITI encourages more importation of electrical vehicles to make EVs more affordable for the rakyat.

Malaysia aims to install 10,000 Electric Vehicle (EV) charging points by 2025 through the Low Carbon Mobility Blueprint. He said MITI also welcomes the continuous support from the industry on the roll-out of charging stations. Before concluding his Keynote Address, Dato' Sri Norazman pointed out that last year, the E&E sector contributed 45% towards Malaysia's total exports, which is very significant. He hopes that the E&E sector continues to remain resilient, sustainable and vibrant. He also added that MITI welcomes industry players from multiple Manufacturing and Services sectors to seek guidance and facilitation.

The Dinner celebration continued with the presentation of plaques to all main Sponsors in appreciation of their continued support. This was followed by appreciation and certificate presentation to TEEAM's Past Council Members and Past Presidents for their unwavering support and contribution during their term(s) of office. One of the highlights of the evening was the Cake-cutting Ceremony to mark the auspicious occassion. TEEAM Exco Members and Former Presidents were invited on the stage to join the Cake-cutting Ceremony. The excitement of the night continued with Lucky Draws and ended on a high note with the presentation of Grand Prizes. The Grand Lucky Draw 1st Prize was an elegant Samsung 65" Smart 4K UHD TV.

TEEAM records its heartfelt appreciation and a huge 'thank you' to all loyal sponsors, members, organising committee, secretariat staff, and everyone else who had played a part in TEEAM's 70th Platinum Anniversary Dinner 2023 Celebration's success story!

Snapshots of TEEAM 70th Platinum Anniversary Dinner 2023

Snapshots of TEEAM 70th Platinum Anniversary Dinner 2023

Snapshots of TEEAM 70th Platinum Anniversary Dinner 2023

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	Energy pluse	1	2	-
Data Log	Hour Meter	o	-	-
	SOE Record	o	-	-
	Demand/Min/Max	o	-	-
	Memory	8MB	-	-

Sfere S15 IoT Gateway

- S15 Gateway can be used with or without internet connection
- Power Supply AC/DC 80-270V
- Data Logging up to 600 Points
- Data Logging Interval and Points adjustable
- No Special App/Software required
- Use of internal WebServer to view via standard web browser
- Can connect up to 20 DPM on one port
- With two RS485 ports

- *System can be further integrated into web server and online monitoring capabilities for high level monitoring*
- *Please contact us for more info*

Existing Network (ETH)

Existing Wifi Network

Use Modem for Remote Sites

Direct to Smartphone (via Hotspot)

- Direct Connection to hand phone via AP available
- Easy to access and download data
- Good for Energy Managers and charge man who require data logging (15 min intervals)
- Data downloaded in .csv files which can be opened using excel applications

Monitoring

Web Server

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TEEAM 71st Annual General Meeting & Election 2023

TEEAM successfully hosted its 71st Annual General Meeting & Election of New Office-Bearers for the term 2023-2025 on Sunday, 28 May 2023 at the Golf & Country Club Kuala Lumpur (KLGCC). Around 70 members and guests attended the AGM. TEEAM 71st Annual General Meeting & Election 2023

The outgoing President, Dr. Siew Choon Thye, recorded a vote of thanks to the Emcee of the day, Ir. Ts. Narendren Rengasamy, who is also the Outgoing Assistant Honorary Secretary, and expressed his gratitude to all members for taking time off to attend the 71st AGM plus the support and trust given to him to lead the Association for the past four years. He also expressed his deepest appreciation to the dedicated EXCO, Council, and General Members, for their unwavering support and contribution during his term of office.

Acceptance of Minutes, Annual Report and Accounts

The attendees approved the Minutes of the past Annual General Meeting. Outgoing Honorary Secretary, Ir. Dr. Ng Kok Chiang, presented the Annual Report which outlined the activities of the Association for the year 2022.

This was followed by the tabling of Audited Accounts by the Outgoing Honorary Treasurer, Ts. Lim Sai Seong, for the year ended 31 December 2022. Both the Annual Report and the Audited Accounts were duly approved and adopted by the General Meeting.

Appointment of Trustees and Internal Auditors

The General Meeting appointed Mr. Liang Kok Boon, Mr. Suresh Kumar Gorasia, Dato' Yeoh Kim Wah and Datuk Ir. Yong Ah Huat, as Trustees.

Mr. Chong Chee Siong and Mr. Fong Mun Loong were re-appointed as Internal Auditors respectively for another term.

Election of New Council Members

At the AGM, no election was required for the position of President, Deputy President, Honorary Treasurer, Assistant Honorary Treasurer and Assistant Honorary Secretary as the positions were all uncontested. Ir. Chang Yew Cheong was elected as the President, Ts. Lim Sai Seong was elected as the Deputy President, Dato' Andy Tan Boon Hin was elected as the Honorary Treasurer, Mr. Choo Wei Seng was elected as the Assistant Honorary Treasurer and Mr. Stan Lim Hui Ming was elected as the Assistant Honorary Secretary.

Elected TEEAM EXCO.

There were 12 nominations of candidates received for Council Members -- the election for Council Members was carried out by secret ballot. Members voted and then ballots were collected and tallied. The ten members elected to the Council were Ir. Lee Kok Chong , Mr. Rajasegaran Bungara Naidu, Mr. Albert Tan Tin Yau, Tc. How Chee Seng, Ms. Liow Lih Na, Ir. Ts. Roger Wong Chin Weng, Mr. Chong Yoon Koon, Mr. Derrick Wong Wai Sing, Mr. Andrew Lu Zen Kai and Datuk Chen Siang Long.

In Closing

As there was no notice received from members for any other business to be conducted at the 71st AGM, the newly-elected President concluded the General Meeting. In his speech, the newly-elected President, Ir. Chang Yew Cheong, said that he was grateful for the trust and confidence placed on him to lead the organisation into a new era of growth, progress and collaboration. He expressed his sincere appreciation to all the members who supported him throughout his journey and a special thanks to his predecessor, Dr. Siew Choon Thye, who led TEEAM to wisely pass through the extremely tough and highly challenging COVID-19 pandemic, moving forward from the healthcare and economic issues faced during the pandemic, to the current recovering status.

He stated that over the past few years, TEEAM had actively issued Press Statements and engaged with the relevant Ministries and Government agencies (namely MITI, MOF, KPDN, ST, CIDB and others) to highlight the pressing issues faced by the members. He also expressed his deepest appreciation for the dedicated individuals who had served the Association in the past. Their hard work, sacrifice, and unwavering commitment had paved the way for our success today. He humbly sought members' continued support, guidance, and participation to build an even brighter future for the Association.

Ir. Chang concluded by saying: "Let us embrace our shared vision, leverage our diverse talents, and ignite a spirit of collaboration that propels us towards new horizons. With determination, unity, and an unwavering commitment to excellence, there is no limit to what we can achieve".

The day's event ended with a sumptous networking buffet lunch @ The Gallery, West Lobby.

Specialised Group General Meetings

When the AGM ended, members dispersed to their respective Specialised Group's General Meetings. The three Specialised Groups elected their respective Chairmen, namely, Ir. Lee Kok Chong for the Engineering Construction & Services Group, Ir. Dr. Ng Kok Chiang for the Trading Group and Mr. Albert Tan Tin Yau for the Manufacturing Group. The three respective groups' Chairmen are automatically the Vice Presidents of TEEAM.

Engineering Construction & Services Group General Meeting

Trading Group General Meeting

Manufacturing Group General Meeting

Snapshots of the TEEAM 71st AGM & Election 2023

TEEAM Council for the year 2023-2025

(Seated from left) Mr. Richard Wong Ngen Wah (Council Member), Mr. Choo Wei Seng (Assistant Honorary Treasurer), Dr. Siew Choon Thye (Immediate Past President), Ir. Lee Kok Chong (Vice President), Ts. Lim Sai Seong (Deputy President), Ir. Chang Yew Cheong (President), Mr. Simon Leong Kien Khan (Honorary Secretary), Mr. Albert Tan Tin Yau (Vice President), Ir. Dr. Ng Kok Chiang (Vice President), Dato' Andy Tan Boon Hin (Honorary Treasurer), Ir. Chew Shee Fuee KMN (Past President) and Mr. Suresh Kumar Gorasia (Past President).

(Standing first row from left) Council Members: Datuk Jacky Chen Siang Long, Ir. Ts. Roger Wong Chin Weng, Mr. Tee Chian Bin, Ms. Liow Lih Na, Ms. Joyce Phang Sze Mun, Ms. Ng Suan Lin, Ms. Tan Ai Peng, Mr. Chong Yoon Koon, Mr. Andrew Lu Zen Kai, Tc. How Chee Seng and Mr. Louis Loo Kok Leong.

(Standing second row from left) Council Members: Mr. Rajasegaran Bungara Naidu, Mr. Derrick Wong Wai Sing, Ir. Ts. Narendren Rengasamy and Mr. Mah Chee Weng.

Some Past President and Council Members are not in the photo. Past President: Datuk Ir. Yong Ah Huat. Council Members: Mr. David Chong Ah Nyap, Mr. Chris Yow Loo Sik, Mr. Hii Hua Chuon, Mr. Steven Lim Kee Teck, Mr. Gan Seng Chong, Mr. Chew See Kheng, Ir. Darren Lee Weng Keen, Mr. Nick Liew Kar Hoe, Mr. Lawrence Yapp Kong Fen, Mr. Chin Kit Hiung, Kapitan Francis Chew Joon Fah and Ir. Lee Cheng Pay.

TEEAM OFFICE-BEARERS FOR THE YEAR 2023-2025

Council

Post	Company/Individual/State Association	Representative
President	Abbaco Controls Sdn Bhd	Ir. Chang Yew Cheong
Deputy President	QAV Technologies Sdn Bhd	Ts. Lim Sai Seong
Immediate Past President	Gruppe Lighting Solution Sdn Bhd	Dr. Siew Choon Thye
Past Presidents	Amalgamated Engineering & Commercial Co (KL) Sdn Bhd	Suresh Kumar Gorasia
	G. H. Liew Engineering (1990) Sdn Bhd	Ir. Chew Shee Fuee KMN
	Datuk Ir. Yong Ah Huat	-
Vice Presidents	Amptech M&E Sdn Bhd	Ir. Lee Kok Chong
	Syarikat Pembaiki Letrik Leong Hing	Ir. Dr. Ng Kok Chiang
	Conway Terminals Manufacturer Sdn Bhd	Albert Tan Tin Yau
Honorary Secretary	Simon Leong Kien Khan	-
Honorary Treasurer	Paramount PES Engineering Sdn Bhd	Dato' Andy Tan Boon Hin
Assistant Honorary Treasurer	Showertec Industries Sdn Bhd	Choo Wei Seng
Council Members	Areta Energy Services Sdn Bhd	Rajasegaran Bungara Naidu
	BSL Eco Energy Sdn Bhd	Tan Ai Peng
	Cable Line Electrical & Engineering Sdn Bhd	Louis Loo Kok Leong
	CS Project & Engineering Services	Tc. How Chee Seng
	EPI Marketing Sdn Bhd	Derrick Wong Wai Sing
	Euro Electrical Sdn Bhd	David Chong Ah Nyap
	Lee Cheng Pay	-
	Malaysia CIE	Ir. Ts. Narendren Rengasamy
	Magnum Pro Marketing Sdn Bhd	Liow Lih Na
	Maxguard Switchgear Sdn Bhd	Joyce Phang Sze Mun
	Mun Hean (Malaysia) Sdn Bhd	Ir. Ts. Roger Wong Chin Weng
	Perniagaan Kejuruteraan Chongs	Chong Yoon Koon
	Powerpoint Electrical Sdn Bhd	Andrew Lu Zen Kai
	SB Elektrik & Elektronik Sdn Bhd	Datuk Jacky Chen Siang Long
	See Kwong Electric (KL) Sdn Bhd	Mah Chee Weng
	Sik Supply Sdn Bhd	Chris Yow Loo Sik
	Swang Space Sdn Bhd	Ng Suan Lin
	Terasaki Electric (M) Sdn Bhd	Tee Chian Bin
State Associations'	Electrical Association of Sarawak & Sabah	Hii Hua Chuon
Representatives	Johor Bahru Electrical & Electronics Association	Steven Lim Kee Teck
(Council Members)	Malacca Electrical Contractors & Traders Association	Gan Seng Chong
	Negeri Sembilan Electrical Engineering Association	Chew See Kheng
	Penang Electrical Merchants' Association	Ir. Darren Lee Weng Keen
	Persatuan Kekompetenan Penjaga Jentera & Pendawai Electrik Perak	Nick Liew Kar Hoe
	Sabah Electrical Association	Lawrence Yapp Kong Fen
	Sandakan Electrical Engineering Association, Sabah	Chin Ket Hiung
	Sarawak Electrical Association	Kapitan Francis Chew Joon Fah
	The Perak Electrical Association	Richard Wong Ngen Wah
Technical Advisors	Dato' Dr. Ir. Andy Seo Kian Haw	-
	Dr. Sulaiman Shaari	-
Legal Advisor	Brent Yap Hon Yean	-
Internal Auditors	Letrik PJ Union Sdn Bhd	Fong Mun Loon
	Wong Electrical & Teak Wood (Sel) Sdn Bhd	Chong Chee Siong
Trustees	Amalgamated Engineering & Commercial Co (KL) Sdn Bhd	Suresh Kumar Gorasia
	Chi-Tak Electrical (Selangor) Sdn Bhd	Liang Kok Boon
	Eco Jaya Elektrik Sdn Bhd	Dato' Yeoh Kim Wah
	Datuk Ir. Yong Ah Huat	-

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Fax: +603-80824268

CIE 2023, Slovenia

CIE 2023

The 30th Quadrennial Session of the CIE (International Commission on Illumination) was hosted by the CIE National Committee of Slovenia. Themed "Innovative Lighting Technologies", the event was held in Ljubljana, Slovenia from 15 to 23 September 2023. The Conference was held from 18 to 20 September 2023 and the CIE Division and Technical Committee meetings were held from 21 to 23 September 2023. The grand event successfully brought together the CIE community and its stakeholders to advance the science of light and lighting, and the technical and organisational work of the CIE.

The Malaysia CIE (MyCIE)/TEEAM delegation comprised Ir. Ts. Narendren Rengasamy, Ts. Lim Sai Seong, Ms. Lim Swee Yong and Dr. Vineetha. They represented MyCIE/TEEAM at the CIE Division and Technical Committee Meetings. It was a fruitful and beneficial event for all who attended.

About the CIE

The CIE is a technical, scientific and cultural non-profit organisation whose objectives are:

1. To provide an international forum for the discussion of all matters relating to the science, technology and art in the fields of light and lighting and for the interchange of information in these fields between countries.
2. To develop basic standards and procedures of metrology in the fields of light and lighting.
3. To provide guidance in the application of principles and procedures in the development of international and national standards in the fields of light and lighting.
4. To prepare and publish standards, reports and other publications concerned with all matters relating to science, technology and art in the fields of light and lighting.
5. To maintain liaison and technical interaction with other international organisations concerned with matters related to the science, technology, standardisation and art in the fields of light and lighting.

It is important to note that in these objectives, light and lighting embraces such fundamental subjects as vision, photometry and colorimetry, involving natural and man-made radiations over the UV, the visible and IR regions of the spectrum, and application subjects covering all usage of light, indoors and out, including environmental and aesthetic effects, as well as means for the production and control of light and radiation.

From 1999 onwards the optical, visual and metrological aspects of the communication, processing and reproduction of images, using all types of analogous and digital imaging devices, storage media and imaging media are also covered by CIE.

For more details on CIE, kindly visit: https://cie.co.at/

Snapshots of the CIE 2023, Slovenia

..... Continue CIE 2023, Slovenia

Snapshots of the CIE 2023, Slovenia

Meeting with Suruhanjaya Tenaga

TEEAM had a good meeting with the Suruhanjaya Tenaga -- ST (Energy Commission), on electrical safety awareness and matters with regards to safety requirements for products, on 28 July 2023 at the ST Headquarters in Putrajaya. It was a valuable feedback and sharing session. The meeting was chaired by ST Safety Director, Ms. Nurhafiza Mohd Hasan, and she attended with her strong team. Representing TEEAM were Ir. Chang Yew Cheong (President), Ts. Lim Sai Seong (Deputy President), Ir. Dr. Ng Kok Chiang (Vice President), Mr. Albert Tan (Vice President), Dato' Andy Tan (Honorary Treasurer), Mr. Choo Wei Seng (Safety Chairman & Assistant Honorary Treasurer) and Tc. How Chee Seng (Asset & CSR Chairman) while Ir. Lee Kok Chong (Vice President) attended via online. It was a highly fruitful meeting.

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Launching of the New Industrial Master Plan 2030

On 1 Sept 2023, TEEAM joined the Ministry of Investment, Trade and Industry (MITI) to witness the historical moment of the Launching of the New Industrial Master Plan (NIMP) 2030 by the Right Honourable (Yang Amat Berhormat - YAB) Dato' Seri Anwar Ibrahim, Prime Minister of Malaysia, at MITI Tower, Kuala Lumpur. Representing TEEAM were Ir. Chang Yew Cheong (President), Mr. Suresh Kumar Gorasia (Past President), Ms. Tan Ai Peng (Council Member) and Mr. Chow Wing Kah (Committee Member).

NIMP 2030 is all about transforming Malaysia's manufacturing sector, by ensuring broad-based growth, in line with the PM's MADANI Economy vision. This NIMP 2030 Master Plan aims to make Malaysia's industries stronger and more resilient in the long run by making our economy more robust and sustainable connecting local industries together, and getting our industries to play a bigger role in the dynamically challenging world market. NIMP 2030 targets to deliver an accelerated and holistic broad-based growth for the nation through the implementation of six key goals, i.e., to increase economic complexity, create high-value job opportunities, extend domestic linkages, develop new and existing clusters, improve inclusivity, and enhance ESG practices. The targeted impactful outcomes include diversification of the economy, improved global competitiveness through more complex products for export, and higher wages for the manufacturing sector employees.

Overview of the NIMP 2030

Malaysia's strength in the manufacturing sector has been significantly driven by the implementation of robust and forward-thinking Industrial Master Plans, first launched in 1986.

The success of the IMP3 (2006-2020) was anchored on innovation, research and development (R&D) and human capital development, to drive high value-added industries to transform Malaysia into a knowledge-based economy.

The transformational journey towards formulating the NIMP 2030 is underscored by the pressing need to build a robust industrial sector as an important pre-requisite to achieve socio-economic prosperity. Three previous iterations of the Industrial Master Plans have dynamically driven industrial development in Malaysia, with the Government adopting industrial development strategies relevant to the period to transform the economy. Malaysia flourished from a low productivity agrarian-based economy and is currently heading towards achieving developed nation status, underpinned by its robust manufacturing and services sectors. This strategy has successfully raised the living standards of the Rakyat (Citizens) and propelled remarkable growth in Gross National Income (GNI) per capita, increasing a whopping 34 times between 1967 to 2019, making Malaysia one of the fastest growing economies in modern history!

Industrial policies have since become more diverse and complex, incorporating new imperatives including the integration into the Global Value Chain (GVC), development of indigenous capabilities in a knowledge economy, evolution of Environmental, Social and Governance (ESG) criteria and disruptions from the New Industrial Revolution. The question is not about the necessity of such policies, but rather what new policies are required and how to proceed thenceforth to reap greater benefits for all.

Given the current challenging environment, benchmarking and learning from other countries' experiences are no longer sufficient. Malaysia needs to boldly embark on its very own path into unchartered territory, to wisely and pro-actively steer the nation into the unpredictable challenging future. The combined impact

NIMP 2030 Launching.

Attendees posing after the Launching.

of the new imperatives and the recent COVID-19 pandemic disruptions has compelled the Government to re-think Malaysia's industrial strategy.

With the advent of NIMP 2030, Malaysia intends to transform the industry into greater heights of economic excellence, capitalising on emerging global trends, supply chain disruptions, current geo-political landscape, digitalisation and ESG considerations. These arising trends are moving at an unprecedented pace and Malaysia has to act fast to capitalise from them.

Therefore, the NIMP 2030 is wholistically designed to achieve Malaysia's noble aspirations in a span of seven years and thus takes on a critical Mission-based approach for industrial development. This strategic approach unites Malaysia by encouraging win-win collaborations between the Government and the private sector with a view to rally the industries.

Purpose of the NIMP 2030

The NIMP 2030 sets forth Malaysia's future direction in industrial transformation. It provides a national integrated plan for resilient industrial development until 2030 – setting the fundamentals for future policy development and enabling the industries at all levels. It effectively articulates Malaysia's position and participation in the global economic environment. The NIMP 2030 serves to:

- Provide national strategic direction to lead the industrial development policies;
- Be a conversation piece for investors and other economies on Malaysia's official position and forward-planning direction; and
- Feature the dynamic role of the Malaysian Government in shaping the economy.

Together, let's all pro-actively embark on this exciting history-in-the-making journey to collectively shape a thriving future for our beloved nation! For more details on NIMP 2030, please visit https://www.nimp2030.gov.my/

Energy Transition Conference 2023

TEEAM attended the much anticipated Energy Transition Conference on 28 and 29 August 2023 at the Kuala Lumpur Convention Centre. Powered by Tenaga Nasional Berhad, the Energy Transition Conference 2023 was the region's largest meeting place for energy transition. The Conference looked ahead to the future amidst an industry-wide transformation to drive progress to the net zero emissions target. This Conference featured the Energy Transition in three different categories -- Power, Transport and Cities.

It united local and international thought leaders, experts, industry players, policy-makers and communities from across the value chain to formulate solutions and strategies, and to stimulate meaningful changes to accelerate energy transition effectively and also form collaborations

The Conference provided actionable insights into the technologies, capabilities and policies that are necessary for the energy transition in this region. Participants have access to the seamless digital platform and physical networking opportunities to ease building connections and explore potential collaborations across sectors.

Exciting highlights included the National Energy Transition Roadmap (NETR) launching. The NETR sets the goal to accelerate energy transition and change the way energy is generated to improve climate resilience. This roadmap is vital for steering Malaysia's shift from traditional fossil fuels-based economy to a high-value green economy. It covers 6 energy transition levers, namely, energy efficiency, renewable energy, hydrogen, bio-energy, green mobility, and Carbon Capture Utilisation and Storage (CCUS).

Participants from TEEAM at the Conference were Ir. Chang Yew Cheong (President), Ir. Dr. Ng Kok Chiang (Vice President) and Datuk Ir. Yong Ah Huat (Past President). Dato' Sri Ir. Peter Lu (Vice Chairman of Sarawak Electrical Association) was also present at the Conference.

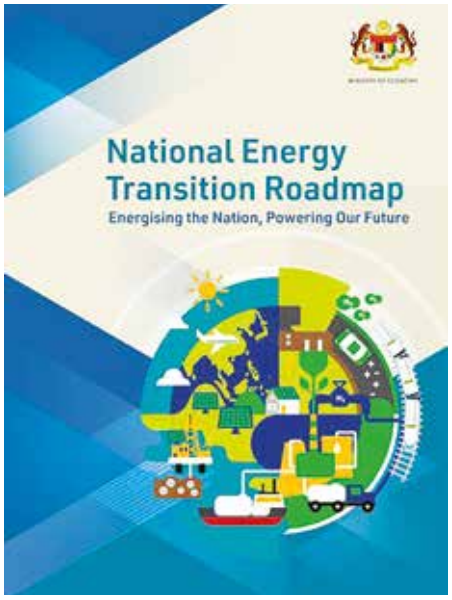
National Energy Transition Roadmap

Executive Summary

Malaysia is blessed with a strategic location, vast amounts of natural resources, potential renewable energy and a growing pool of talents who are appreciative of a green economy. One of the tenets of Ekonomi MADANI is spurring Malaysia's green growth for climate resilience. Malaysia has been recognised as the best country in South-east Asia in the Energy Transition Index 2023 by the World Economic Forum (WEF). This astounding feat shows that Malaysia is on the right track to drive our strategic shift and economic re-structuring into new growth areas. Malaysia is solidly committed to low-carbon development aimed at re-structuring the economic landscape to a more sustainable one. In this context, the National Energy Transition Roadmap (NETR) sets the goal to accelerate energy transition and change the way energy is generated to improve climate resilience.

NETR has developed the Responsible Transition (RT) Pathway 2050 to shift Malaysia's energy systems from fossil fuel-based to greener and low-carbon systems. The Total Primary Energy Source (TPES) modelling indicated that our energy demand will increase marginally at 0.2% annually from 95 Mtoe in 2023 to 102 Mtoe in 2050. The RT Pathway 2050 has also shown promising de-carbonisation results as evidenced by the phasing out of coal and the reduction of fossil-fuel reliance from 96% in 2023 to 77% in 2050. Natural gas is set to be not only a transitional fuel but also the primary contributor of TPES at 57 Mtoe (56%) followed by renewables that include solar, hydro and bio-energy, which are expected to collectively contribute 23% of TPES in 2050 from a mere 4% in 2023.

NETR outlines 50 initiatives under the six energy transition levers and five enablers in addition to the 10 flagship projects and initiatives announced in July 2023! The energy transition financing will be undertaken through a combination of grants, loans, rebates, incentives and other investments to support the whole-of-nation approach. NETR aims to power our future by unlocking potentials in new growth areas and delivering progress and prosperity to Malaysian households and businesses. The successful implementation of NETR will uplift Malaysia's GDP value approximately 10-fold from RM25 billion in 2023 to RM220 billion and also generate 310,000 jobs in 2050.



NETR is not just a document about measures to meet the Net-Zero GHG (Greenhouse Gas) emissions target. NETR represents a new way of thinking to fundamentally transform Malaysia's economy and livelihoods towards a stronger and more resilient future.

A copy of the National Energy Transition Roadmap can be downloaded from the Ministry of Economy's website: https://www.ekonomi.gov.my/en/resources/publications

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..... Continue Energy Transition Conference 2023

Snapshots at the Energy Transition Conference 2023

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Launching of the National i-ESG Framework

On 2 October 2023, TEEAM President Ir. Chang Yew Cheong together with Past President Mr. Suresh Kumar Gorasia, attended MITI's Launching of the National Industry Environment, Social and Governance Framework (i-ESG Framework) at MITI Tower, Kuala Lumpur. Many industry leaders joined this important Framework Launching Ceremony. This Framework is a key enabler to push for the Net Zero mission objective, one of the four critical missions of the recently-launched New Industrial Master Plan 2023 (NIMP 2030). The i-ESG's objective is to accelerate transition towards sustainable practices amongst manufacturing companies and tapping into a US$12 trillion global market of ESG-focused opportunities.

National i-ESG Framework

In today's business landscape, sustainable development has become a fundamental element for organisations worldwide. This shift is driven by the recognition of the importance of Sustainable Development Goals (SDGs) and Environmental, Social and Governance (ESG) practices in achieving long-term success and making a positive impact on economy, environment and society.

Hence, the i-ESG Framework has been meticulously crafted. This framework envisions a manufacturing sector that is economically prosperous, environmentally sustainable and socially equitable. It stands as a significant initiative within the New Industrial Master Plan 2030, strategically aligned with Mission 3: Push for Net Zero. Within the i-ESF Framework, a comprehensive approach unfolds 17 strategies and 50 associated deliverables, categorised under 4 components: Standard, Capacity-Building, Financing and Mechanisms.

The Framework adopts a phased approach, with its initial Phase 1.0 "Just Transition" scheduled from 2024 to 2026. During this phase, the focus is on heightening awareness, delivering training and providing financial support, with particular emphasis on assisting MSMEs to embark on their ESG journey with confidence.

The second phase (Phase 2.0) of the Framework, scheduled between 2027 and 2030, is geared towards accelerating ESG practices. Strategies for this phase will be carefully crafted to align with both national and international ESG requirements.

For more information on i-ESG, you my visit MITI's website www.miti.gov.my

NATIONAL INDUSTRY ENVIRONMENTAL, SOCIAL & GOVERNANCE FRAMEWORK

i-ESG Framework.


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*Full list of project reference available upon request

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Email: info.gruppelighting.com

Website : www.gruppelighting.com

Official Opening Ceremony of the TEEAM Malaysia Pavilion.

Electric & Power Indonesia 2023

TEEAM hosted the Malaysia Pavilion at Electric & Power Indonesia 2023 -- to offer Malaysian products and engineering services to our ASEAN neighbours and beyond. The Expo was successfully staged from 13 to 16 September 2023 at Jakarta International Expo (JIExpo) in Kemayoran, Jakarta, Indonesia.

TEEAM was honoured to have the Ambassador of Malaysia to the Republic of Indonesia, His Excellency Dato' Syed Md Hasrin Tengku Hussin, to officiate the TEEAM Pavilion. His Excellency was accompanied by Mr Mohd Najeeb Abdullah, Minister Advisor (Economy) of the Embassy of Malaysia, Ms. Anisah Ali, MATRADE Trade Commissioner, Jakarta and Mr. Hafidz Shukri Junit (First Secretary, Trade) of the Embassy of Malaysia,

The Malaysia Pavilion offered a wide range of products and services ranging from Busduct Solutions, LED Lightings, Lighting Poles, Solar PV, Switchgears, Fittings & Accessories, Electric Instant Water Heaters, Power Capacitors, Power Factor Regulators, Insulated Tools, Connection Boxes and Power Cables.

The exhibiting members from TEEAM were Electrical Components, Gruppe Marketing, Mestron Engineering, Mikro Busway, Multi-B, Samaiden, Showertec Industries, Southern Cable, Tekno Bumi and Toshiba Transmission.

It was a very good platform for the local Indonesian E&E industry peers to meet face-to-face, pro-actively communicate, and cordially enhance interaction with our Malaysian exhibitors, and also thereafter create valuable win-win business opportunities. It was certainly a highly-rewarding return-on-investment for the enthusiastic Malaysian exhibitors!

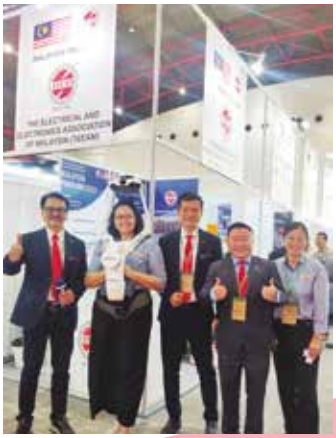
TEEAM exhibitors also participated in the Malaysia-Indonesia Business Networking Session, which was hosted by the Construction Industry Development Board, Malaysia (CIDB). CIDB also participated in the Exhibition with a sizeable 19-strong Malaysian companies from the construction industry. The exciting Business Networking Session involved some 130 construction-related participants from Malaysia and Indonesia. Members of the 'Asosiasi Kontraktor Listrik dan Mekanikal Indonesia' (Association of Electrical & Mechanical Contractors of Indonesia - AKLI) and 'Asosiasi Kontraktor Indonesia' (Association of Contractors of Indonesia - AKI) were invited to participate in the Networking Session as well. Esteemed officials from the Ministry of Public Works and the Housing Republic of Indonesia were present too. It was an interactive and rewarding session. A big thank you to the great host, CIDB!


Ambassador of Malaysia to the Republic of Indonesia, His Excellency Dato' Syed Md Hasrin Tengku Hussin signing a plaque.


VIP Reception

TEEAM wishes to record its sincere appreciation and heartfelt thanks to CIDB, MATRADE Jakarta and the Embassy of Malaysia in Jakarta for the great support extended to the Association and we are always committed and ever dedicated to do our very best!

Snapshots at the Electric & Power Indonesia 2023



Snapshots at the Electric & Power Indonesia 2023

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Challenges and Opportunities in the Electrical Industry – Part 43

Ir Chew Shee Fuee KMN, TEEAM Past President

Guideline on Electrical Safety Management Plan and Programme (Issued on 30.03.2017)

The above has been published by the Energy Commission of Malaysia (Suruhanjaya Tenaga -- ST) but unfortunately many non-domestic electrical owners or operators are not in compliance of the electrical safety management plan. The essential requirements are listed below and we hope to encourage all parties involved to attempt and comply as they are mandatory.

Introduction

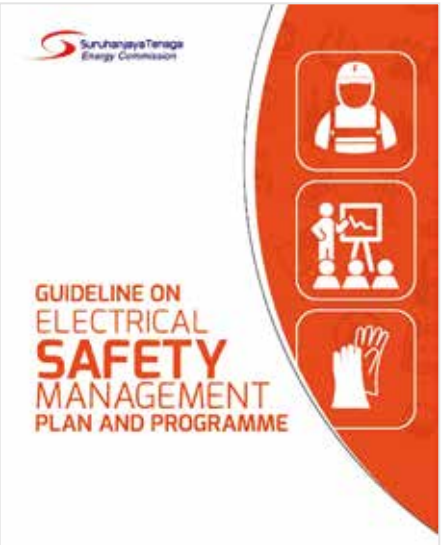
Electrical safety management system is a framework of processes and procedures developed and applied to ensure that an organisation can fulfill all tasks required to achieve continuous improvement in electrical safety performance.

The Electricity Supply (Amendment) Act 2015 (Act A1501) was gazetted on 5 November 2015 and came into force on 1 January 2016. Amongst the main objectives for the amendment is to enhance the safety of consumers and industry personnel through the implementation of safety management systems to control electrical risks at electricity supply infrastructure and consumer installations.

Amongst others, Act A1501 requires a licensee who operates and maintains electricity supply infrastructure to prepare and comply with a safety management plan while a non-domestic electrical installation owner or operator, licensee for retail and licensee for private installation, to prepare and comply with a safety management programme.

The Objectives

- To serve as a guide for licensees, owners, tenants, management, operators and contractors in the preparation of safety management plans or programmes.
- To ensure that the safety management plans or programmes that are prepared by licensees, owners, tenants, management, operators and contractors address all elements of an effective electrical safety management system, namely: policy, organising, planning and implementation, risk control measures, performance evaluation and action for improvement.
- To ensure that electrical safety management plans or programmes are suitably and systematically developed and structured for the control of electrical risks of electricity supply infrastructure or non-domestic electrical installations.
- To assist in assessing the level of performance and compliance with respect to the electrical safety management plan or programme of licensees, owners, tenants, management, operators and contractors.



Who are responsible?

- Electricity Supply Infrastructure Licensees;
- Retail Licensees;
- Private Installation Licensees;
- Owners, Tenants, Competent Persons and Operators of Non-Domestic Electrical Installations;
- Owners, Management, Competent Persons and Operators of Electrical Infrastructure Assets; and
- Electrical Contractors, Competent Persons and Workers working on Electrical Infrastructure Assets and Electrical Installations.

Elements of Safety Management Plan or Programme

- Electrical Safety Policy, Plan/Programme
- Documents

Organising

- Responsibility
- Competence
- Communication

Planning and Implementation

- Identification, Evaluation and Control of Risks
- Permit-To-Work System
- Emergency Preparedness
- Investigation of Accidents and Incidents
- Preventive and Corrective Action
- Continual Improvement

Credit: The above information has been extracted from ST's Guideline on Electrical Safety Management Plan and Programme (30/03/2017). It can be downloaded from ST's website at: www.st.gov.my

Ir. Chew Shee Fuee KMN *B Sc (Hons) (Strathclyde), PEng, CEng, FIEM, MIEE Member, IEEE Member, 1st Grade Electrical Engineer (Competent up to 500 kV).*

Ir. Chew was President of The Electrical and Electronics Association of Malaysia (TEEAM) from 2001-2005 and 2013-2017. He was the President of the ASEAN Federation of Electrical Engineering Contractors (AFEEC) for 2016-2018. He is a Past Chairman of The Institution of Engineering & Technology (IET) Malaysia Local Network. Ir. Chew is currently the Managing Director of G H Liew Engineering (1990) Sdn Bhd and Chris Chew Electrical Consultant. He graduated from the University of Strathclyde, Glasgow with a B Sc (Hons) in Electrical & Electronics Engineering. He is a Professional Engineer and is also licensed by the Energy Commission (Suruhanjaya Tenaga, ST) as a Competent Engineer (without voltage limits), and a Service Engineer to carry out electrical testing up to a voltage of 500 kV.

Ir. Chew has more than 40 years of industry experience in electrical control and relay protection. He is also specialised in electrical site tests on power equipment, electrical fault investigation, plus service and maintenance of electrical switchgears and relays. His work also includes electrical supervision of sub-stations and electrical audit. He also presents lectures on electrical apparatus and the protection system. He can be reached at e-mail: sfchew@ghliew1990.com

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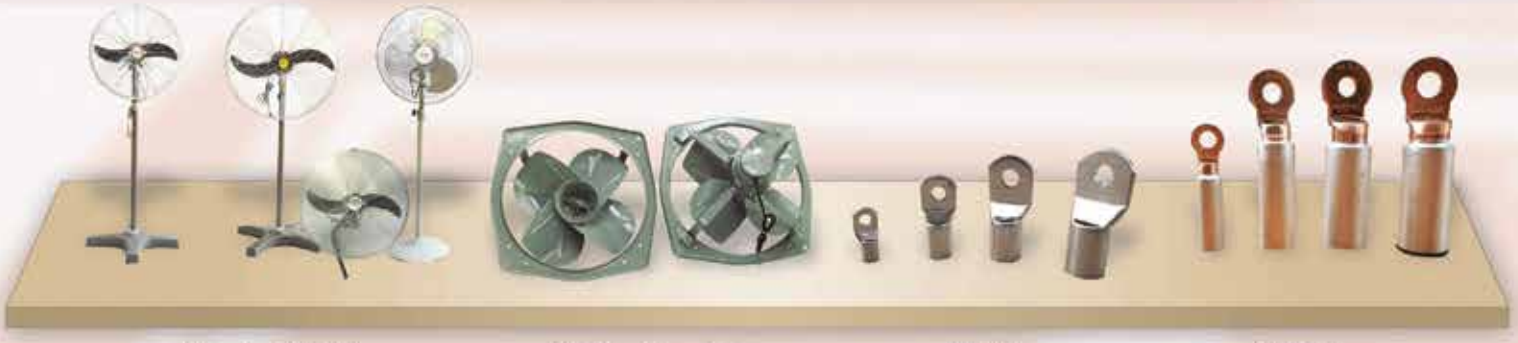

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SM1 1.5mm - 16mm x 4 core
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KLSCCCI - Networking with Trade Association Members

Group photo taken for the album.

The Kuala Lumpur & Selangor Chinese Chamber of Commerce & Industry (KLSCCCI) hosted a Networking Session with its Trade Association Members. This 4th "Exchange Meeting with KLSCCCI Business Group Members" was held on 23 August 2023 at Wisma Chinese Chamber. The KLSCCCI Business Group had cordial meetings with representatives from TEEAM, the Chinese Chamber of Commerce and Industry of Balakong, Selangor, the Selangor & Federal Territory of Kuala Lumpur Kin Cho Hong, and "Persatuan Peniaga & Pengusaha Sederhana & Kecil, Seri Kembangan" of Selangor.

The KLSCCCI Council hoped to enhance understanding and listen to the arising needs of industry, and also to explore business opportunities with one another. The representatives of all the Associations had a very lively discussion at the meeting and also shared the problems faced by their respective industries. More than 30 people attended this Networking Session.

TEEAM is a Life Trade Association Member of KLSCCCI. Attendees from TEEAM at the Networking Session were Ir. Chang Yew Cheong (President), Dr. Siew Choon Thye (Immediate Past President), Ts. Lim Sai Seong (Deputy President), Ir. Dr. Ng Kok Chiang (Vice President) and Dato' Andy Tan (Honorary Treasurer).

(Right) Ir. Chang Yew Cheong (TEEAM President) exchanging memento with Datuk Ng Yih Pyng (KLSCCCI President).


Networking Session in progress.

TEEAM Series of Technical Talk 02/2023

TEEAM conducted the 2nd Technical Talk 02/2023 on "Electrical Protection - Overcurrent & Earth Fault and Protection Relays" and "Fundamentals of Protection and Their Basic Principles of Operation" on 22 August 2023 at The Cybertorium, Menara STAR, Petaling Jaya. The audience had the opportunity to hear from the industry's foremost practitioners on Electrical Protection, which is very important to enhance safety, reliability and efficiency of electrical installations.

The esteemed Speakers, Ir. Chew Shee Fuee KMN, the Past President of TEEAM and Mr. Ng Tong Heng of Mikro Sdn Bhd, shared their insights, knowledge and experience, and also discussed critical issues on electrical safety during the interactive Q&A session.

TEEAM Deputy President, Ts. Lim Sai Seong, delivered the Welcome Speech on behalf of the President. Amid the growing landscape of electrical components, TEEAM places strong emphasis on enhancing the safety, reliability and efficiency of electrical installations. Since 2014, TEEAM has initiated a nationwide campaign aimed at enhancing awareness about domestic electrical safety and advocating for the periodic testing of Residual Current Circuit-Breakers (RCCBs). RCCBs play a highly crucial role in detecting and preventing electrical leakage currents, mitigating the risk of electric shock resulting from indirect contacts. Continuous efforts of the Safety Awareness Programme are currently in planning with close collaboration with the Energy Commission (Suruhanjaya Tenaga).

TEEAM would like to thank the Star Media Group for hosting an impressive venue. The Cybertorium provided an exceptional platform for networking and knowledge exchange. It was a very fruitful and enlightening Technical Talk for all the 70 keen participants.

Ts. Lim Sai Seong, TEEAM Deputy President delivering a Welcome Speech.

Speaker, Ir. Chew Shee Fuee KMN (TEEAM Past President).

Speaker, Mr. Ng Tong Heng of Mikro Sdn Bhd.

Snapshots of TEEAM Series of Technical Talk 02/2023

TEEAM-IEM MOU Signing Ceremony

On 8 Sept 2023, TEEAM inked a Memorandum of Understanding (MOU) with the Institution of Engineers Malaysia (IEM) with a view to promote and facilitate the exchange of information, and collaborate to organise activities for the benefit of members of both the signing parties.

The MOU Signing Ceremony took place at the ENGINEERS 2023 Exhibition which was held from 6 to 9 September 2023 at the Kuala Lumpur Convention Centre. IEM was represented by its President, Ir. Prof. Dr. Norlida binti Buniyamin and Honorary Secretary, Ir. Prof. Dr. Zuhaina binti Zakaria. Signing on behalf of TEEAM was Ir. Chang Yew Cheong, TEEAM President and it was witnessed by Mr Simon Leong, TEEAM Honorary Secretary. Also present from TEEAM to support the MOU Signing Ceremony were Assistant Honorary Treasurer, Mr. Choo Wei Seng and Council Member, Mr. Chris Yow.

Better and more promising opportunities are in store for the growing from strength-to-strength E&E fraternity, going forward. Congratulations!

TEEAM and IEM inked an MOU.

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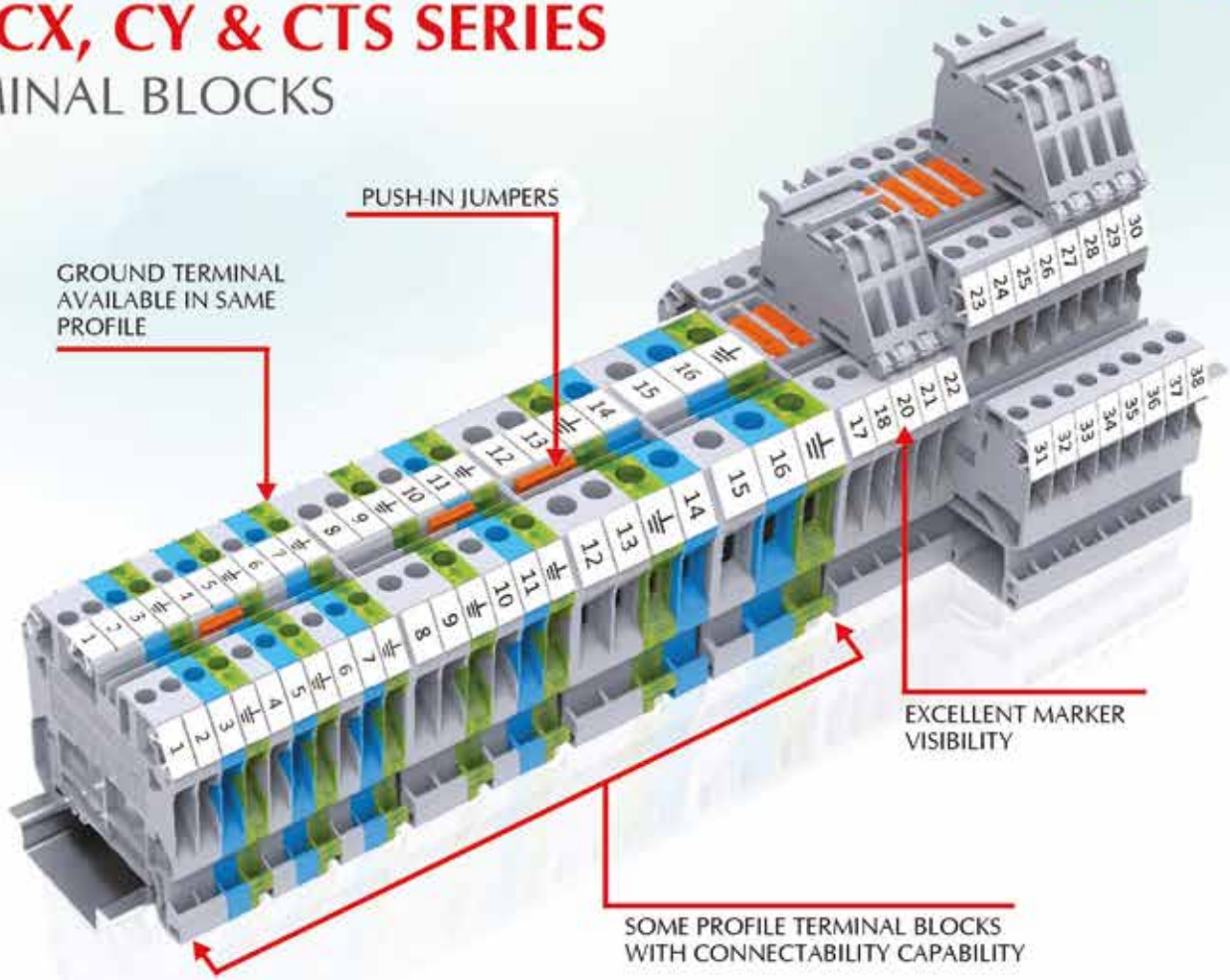

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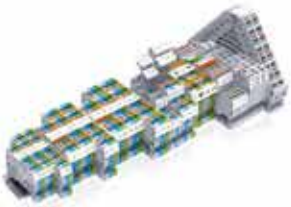

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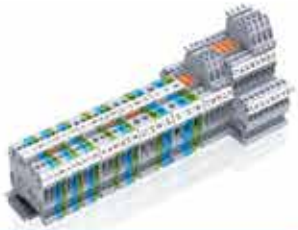

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MyCIE Meeting with DSM

After the meeting - *MyCIE Committee posing for the album.*

Meeting in progress.

The Malaysia CIE (MyCIE) Committee had a meeting with the Department of Standards Malaysia (DSM) on 22 March 2023 at Menara Cyber Axis, Cyberjaya. The objective of the meeting was to recap MyCIE's status and to report the activities that were held from 2020 to 2023, as well as to discuss the CIE membership.

It was a fruitful meeting after a long gap due to the pandemic. MyCIE hopes to receive continuous support and closer collaboration from DSM in the coming years.

MyCIE

TEEAM has initiated and formalised the Malaysian National Committee of CIE (NCCIE) with the support of the Government through the Department of Standards Malaysia. TEEAM hosts and facilitates the Secretariat of Malaysia CIE (MyCIE). Malaysia CIE (MyCIE) is the Working Committee that carries out the project works. MyCIE consists of interested parties from the industry and universities. It is a vital platform for them to reach out to the international forums. The technical activities of Malaysia CIE are carried out under the responsibilities of its six divisions.

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MCMEA News

MCMEA Council Meeting

The MCMEA Council Meeting 01/2023 was held on 29 May 2023 at MACRA's Office at Wisma Zelan in Bandar Tun Razak, Cheras, Kuala Lumpur. MCMEA is the Malaysia Council of Mechanical & Electrical Associations, which was founded as a result of collaborative efforts amongst various associations aimed to effectively address all Mechanical and Electrical works-related issues, thus providing one common platform and voice representing the said industries whenever the needs were to arise. MCMEA is a coalition of six Associations which has over 3,000 member companies that employ over 100,000 workers. MCMEA comprises the following:

- BASAM - Malaysia Building Automation System Association
- MACRA - Malaysian Air-Conditioning & Refrigeration Association
- MALEA - The Malaysian Lift & Escalator Association
- MFPA - Malaysian Fire Protection Association
- SKLPA - The Selangor & Kuala Lumpur Plumbing Association
- TEEAM - The Electrical and Electronics Association of Malaysia

The meeting witnessed the hand-over of the MCMEA Chairmanship from SKLPA's President, Mr. David Tan, to BASAM's President, Mr Jeffrey Lim whilst Mr. Wong Weng Sum of MALEA was elected the Vice Chairman. It was a fruitful meeting and MCMEA members thanked the host, MACRA.

Courtesy Visit to PAM

MCMEA paid a Courtesy Visit to the Pertubuhan Akitek Malaysia – PAM (Malaysian Institute of Architects) on 21 June 2023. The delegation was received by Ar. Abu Zarim bin Abu Bakar (PAM President), Ar. Dexter Koh Yew Peng (PAM Vice President) and Ar. Adrianta bin Aziz (PAM Deputy President).

The Courtesy Visit aimed at bridging the gap between the professional body and trade associations, especially the M&E sector of the construction industry. Council Members of MCMEA from BASAM, MACRA, MALEA, MFPA, SKLPA and TEEAM joined the visit. M&E issues affecting members were discussed. It was a very fruitful visit-cum-meeting. A big thank you to PAM for hosting MCMEA's visit.

A group photo of MCMEA Council Members for the record.

MCMEA Council Meeting 01/2023.

Courtesy visit to PAM - A group photo of MCMEA and PAM Officials.

Hand-over of the MCMEA Chairmanship from SKLPA President, Mr. David Tan (right), to BASAM President, Mr Jeffrey Lim.

Membership Recruitment Campaign

TEEAM appeals to members to help in recruiting companies and individuals to join the association to strengthen TEEAM's membership base. Incentives are offered by the Membership Recruitment Committee. Members introducing a new company member will be entitled to two points, whilst introducing an individual member will be entitled to one point. The points can be accumulated and used to redeem free advertisements in Suara TEEAM or redeem membership subscription.

For details, please contact the TEEAM Secretariat at Tel: +603-9221 4417.

The membership application form can be downloaded from the TEEAM website at www.teeam.org.my

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TEEAM Series of Technical Talk 01/2023

TEEAM successfully organised the first Technical Talk 01/2023 on 23 May 2023 at TEEAM Seminar Hall. The free Talk was well attended by some 50 participants from industry.

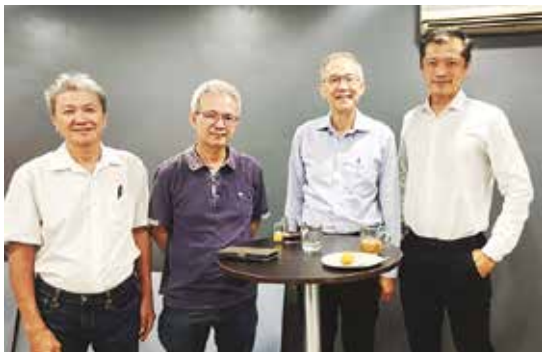
The Technical talk topics focused on “Energy Delivery System – How to Achieve Good Electrical Connection, and Electrical Failures Caused by Poor Connection”. The Distinguished Speaker, Mr. Albert Tan of Conway Terminals Manufacturer, who was also a TEEAM Council Member, gave an excellent sharing on how to achieve good electrical connection to conduct current safely at low temperature, thus resulting in energy savings. He also highlighted some local MS and international IEC standards on terminations and joints.

Ir. Chew Shee Fuee KMN, TEEAM Past President, talked on many aspects of electrical failures caused by poor connection and the preventive procedures needed to reduce the impact and damage to the electrical system. He also highlighted the recent transformer failure fire incident at the Midvalley Shopping Centre in Kuala Lumpur.

It was a good Technical Sharing session for all participants and also an excellent opportunity for networking with fellow members.

Speaker, Ir. Chew Shee Fuee KMN (TEEAM Past President).

Participants listening attentively to Mr. Albert Tan of Conway Terminals Manufactures.



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Seminar on ESG Awareness and SME Green-Financing

Moving Towards ESG, TEEAM in collaboration with RHB Bank and the ESG Association of Malaysia, successfully co-organised a Seminar on Environmental, Social & Governance (ESG) Awareness and SME Green-Financing on 12 April 2023, at the TEEAM Seminar Hall in Kuala Lumpur.

The Seminar started with a Welcome Speech by Ir. Lee Kok Chong, the then Chairman of TEEAM Professional Development & Events Committee followed by an Opening Address by Adjunct Practice Professor, Mr. Cheah Kok Hoong, President of the ESG Association of Malaysia. The Distinguished Speakers were Ms. Joyline Chai and Dr. Hari Ramalu Ragavan from the ESG Association of Malaysia; Mr. Adlan Hafiz Azhar of Penjana EKO; Mr. Wesley Ho of Solarvest; and Mr. Sim Ee Chiew of RHB Bank.

The timely Seminar covered interesting topics on ESG Compliance, Renewable Energy, Energy-Efficiency, Solar, Greenhouse Gases Emissions, Waste Management, Elements of Circular Economy, and Green-Financing Schemes for SMEs from RHB Bank. The participants were briefed that the Environmental, Social and Governance (ESG) performances and actions towards achieving the United Nation (UN) Sustainable Development Goals (SDGs) are increasingly being embedded into strategic considerations and daily operations of organisations around the globe.

To make the Seminar more interactive and to increase participant engagement, Mr. CM Woon, Executive Director of the ESG Association of Malaysia, engaged the participants with Q&A before each session. The winners of the Q&A were given a small token of appreciation. Some 32 participants attended the fruitful Seminar. The Seminar ended with a sumptuous lunch sponsored by RHB Bank.

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Malaysian Economic Statistics Review Volume 8/2023 Key Reviews & Overviews

The Department of Statistics, Malaysia (DOSM) had recently released the Malaysian Economic Statistics Review (MESR) Volume 8/2023 on 30 August 2023. This publication presents the latest economic scenario based on the official macro-economic statistics released by DOSM. The primary focus of this edition is on the most recent statistics issued in June 2023 that are well-aligned with the statistics for the second quarter, as well as chosen statistics for July 2023. The MESR will assist users and readers to have the latest information on the economic performance, and in much greater detail.

Key Reviews

- According to the July 2023 report by the International Monetary Fund (IMF), global growth rates are anticipated to decline, with the annual average shifting from 3.5 per cent in 2022 to 3.0 per cent for both 2023 and 2024 whilst global headline inflation is expected to soften from 8.7 per cent in 2022 to 6.8 per cent in 2023 and 5.2 per cent in 2024 respectively.

- In the United States, the economic growth rate is expected to moderate from 2.1 per cent in 2022 to 1.8 per cent in 2023 and further to 1.0 per cent in 2024. The rise of growth projection for 2023 is due to strong consumer spending in the first quarter of 2023. Similarly, the United Kingdom's economic growth is set anticipated to ease from 4.1 per cent in 2022 to 0.4 per cent in 2023 and rebound to 1.0 per cent in 2024. Meanwhile, China's economic prediction remains consistent, foreseeing a growth rate of 5.2 per cent for 2023 and 4.5 per cent for 2024.

- Malaysia's Gross Domestic Product (GDP) growth, moderated to 2.9 per cent in the second quarter of 2023 from 5.6 per cent in the previous quarter, with quarter-on-quarter seasonally-adjusted recorded a 1.5 per cent growth as compared to 0.9 per cent in Q1 2023.

- Recent Agricultural statistics showed a 3.9 per cent decrease in Natural Rubber production, dropping from 31,083 tonnes in the previous year to 29,867 tonnes in June 2023; however, there was a 23.8 per cent monthly increase compared to May 2023 (24,126 tonnes). The production of Oil Palm fresh fruit bunches for July 2023 increased by 4.2 per cent, amounting to 8,350,319 tonnes, as against July 2022 (8,015,968 tonnes) and a 12.3 per cent upsurge from June 2023 (7,435,995 tonnes).

- Malaysia's Industrial Production Index (IPI) reverted to a decline of 2.2 per cent year-on-year after a positive growth of 4.8 per cent in May 2023. The decrease in June 2023 was attributed to contractions in the Manufacturing and Mining sectors, with negative 1.6 per cent (May 2023: 5.1%) and negative 6.4 per cent (May 2023: 2.9%) respectively. Additionally, the output of the Electricity sector moderated to 2.8 per cent, in contrast to the 5.9 per cent recorded in the previous month. In the second quarter of 2023, the IPI registered a marginal decline of 0.3 per cent as compared to the 2.9 per cent growth recorded in the first quarter of 2023.

- The sales value of Malaysia's Manufacturing sector in June 2023 was RM147.4 billion, registering a 4.0 per cent decline from a positive growth of 3.3 per cent in the previous month. This decrease was primarily driven by the Food, Beverages & Tobacco sub-sector, which reduced by 14.6 per cent. Moreover, the contraction was also influenced by the Petroleum, Chemical, Rubber & Plastic (-12.4%) as well as the Wood, Furniture, Paper Products & Printing (-1.1%) sub-sectors. During the second quarter of 2023, the Manufacturing sector experienced its first decline since the second quarter of 2020 (-16.5%), dropped by 1.0 per cent compared to the corresponding quarter in the previous year.

- In the second quarter of 2023, the revenue generated by the Services sector recorded a 6.9 per cent year-on-year growth, amounting to RM568.3 billion. Simultaneously, the Services Volume Index increased by 5.0 per cent, achieving a value of 143.1 points for the quarter. The Services sector's overall revenue expanded by 1.4 per cent in comparison to the annual growth of the first quarter of 2023. This expansion found its impetus in the Wholesale & Retail Trade, Food & Beverages, and Accommodation segment, with a 1.2 per cent increase. Similarly, the Information & Communication, Transportation & Storage, and Professional, Real Estate, and Administrative & Support Service segments recorded growth rates of 2.1 per cent and 1.7 per cent respectively. Conversely, the Volume Index for the Services sector experienced a slight decline of 0.6 per cent when compared to the preceding quarter.

- Malaysia's Consumer Price Index (CPI) continued to ease in June to 2.4 per cent, the lowest recorded in the first six months of 2023. The inflation rate for Restaurants & Hotels stood at 5.4 per cent (May 2023: 6.7%), Food & Non-Alcoholic Beverages exhibited a rate of 4.7 per cent (May 2023: 5.9%), and Furnishings, Household Equipment & Routine Household Maintenance recorded an inflation rate of 2.3 per cent (May 2023: 2.7%). The inflation for the second quarter of 2023 increased by 2.8 per cent to 130.2 as compared to 126.6 in the same quarter of the previous year while Malaysia's inflation in July 2023 cooled to 2.0 per cent.

- In the meantime, Malaysia's Producer Price Index (PPI) on an annual basis decreased further by 4.8 per cent in June 2023 compared to a 4.6 per cent decrease in the previous month. Most of the sectors' indices showed downward trends, such as the Agriculture, Forestry & Fishing (-20.4%), Mining (-16.6%), and Manufacturing (-1.8%), except for Water Supply and Electricity & Gas Supply indices, which increased by 3.2 per cent and 1.0 per cent respectively. In the second quarter of 2023, PPI for Local Production declined by 4.1 per cent (Q1 2023: -0.8%), primarily driven by the Agriculture, Forestry & Fishing (-24.6%), Mining (-10.8%), and Manufacturing (-1.0%) sectors. Malaysia's PPI declined 2.3 per cent in July 2023.

- Malaysia's Current Account Balance maintained its surplus with RM9.1 billion in the second quarter of 2023, contrasting with RM2.9 billion recorded in the corresponding period of the previous year. This surplus was underpinned by the net exports of goods.

- Foreign Direct Investment (FDI) recorded a lower net inflow of RM3.1 billion as compared to RM18.0 billion for the same quarter of the preceding year. Meanwhile, Direct Investment Abroad (DIA) registered a net outflow of RM8.0 billion in Q2 2023 as compared to RM14.4 billion (Q2 2022).

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- On the other hand, Malaysia's total merchandise trade decreased 11.3 per cent year-on-year to record RM643.2 billion in the second quarter of 2023. Exports fell by 11.1 per cent to RM348.7 billion, while imports decreased by 11.5 per cent to RM294.5 billion. The trade surplus went down by 8.8 per cent to RM54.1 billion. In July 2023, the external trade continued its decline, with a total trade of RM216.4 billion, compared to RM 252.8 billion in July last year. The value of exports was recorded at RM116.8 billion, while imports was RM99.7 billion with a trade surplus at RM17.1 billion.

- During the second quarter of 2023, Malaysia's labour force rose 2.4 per cent year-on-year, totalling 16.73 million persons. This resulted in an increase of 0.8 percentage points in the Labour Force Participation Rate (LFPR), reaching 70.0 per cent. The number of employed persons continued to increase at a slower rate of 2.8 per cent to 16.15 million persons during the quarter, with the employment-to-population ratio reaching 67.5 per cent. Concurrently, the number of unemployed persons reduced by 9.5 per cent to 581.4 thousand persons, registering an unemployment rate of 3.5 per cent.

- The Leading Index (LI) declined 2.1 per cent in June 2023, recording 109.8 points as compared to 112.1 points in the previous year. Similarly, the monthly change of LI contracted 0.5 per cent in the reference month as compared to 1.7 per cent in May 2023. This signals a potential easing of Malaysia's short-term economic outlook, with the anticipation that targeted economic policy measures will help counter the existing challenges in the economy.

Overview of the World Economy

According to the International Monetary Fund (IMF) in its July 2023 report, there is an expected decrease in the annual average global growth rate, shifting from 3.5 per cent in 2022 to 3.0 per cent for both 2023 and 2024. Global headline inflation is expected to soften from 8.7 per cent in 2022 to 6.8 per cent in 2023 and 5.2 per cent in 2024. Core inflation is projected to decline and forecasts for inflation in 2024 have been revised upward.

The United States' growth rate is expected to moderate from 2.1 per cent in 2022 to 1.8 per cent in 2023, followed by a further slowdown to 1.0 per cent in 2024. The growth projection for 2023 has been adjusted upwards by 0.2 percentage points due to the robust growth in consumer spending during the first quarter of 2023.

The United Kingdom's economic growth is set to ease from 4.1 per cent in 2022 to 0.4 per cent in 2023. However, it is anticipated to rebound to 1.0 per cent in 2024, reflecting a positive adjustment of 0.7 percentage points for 2023. This adjustment is attributed to higher-than-expected consumption and investment due to increased confidence resulting from lower energy prices, decreased post-Brexit uncertainty, and a resilient financial sector following the resolution of global banking stress in March 2023.

China's economic forecast remains steady at 5.2 per cent for 2023 and 4.5 per cent for 2024. Consumption growth aligns with the April 2023 World Economic Outlook (WEO) predictions, but investments are lower due to the on-going real estate decline in the country. Though unexpectedly robust exports help counter-balance the investment slump, their impact is waning as the world economy slows down. In the first half of 2023, China's GDP grew by 5.5 per cent, one percentage point faster than the first quarter. The Services sector demonstrated the quickest recovery, surging by 6.4 per cent compared to the previous year. In the second quarter of 2023, China's GDP showed stronger growth of 6.3 per cent compared to the 4.5 per cent growth in the first quarter.

Singapore's economy grew by 0.5 per cent compared to the previous year in the second quarter of 2023, following an 0.4 per cent growth in the first quarter owing to the Services sector, which expanded by 2.6 per cent as compared to 1.9 per cent in the first quarter. The Government also adjusted its forecast for 2023 GDP growth, lowering it to a range of 0.5 per cent to 1.5 per cent from the earlier projection of 0.5 per cent to 2.5 per cent. This adjustment reflects challenges such as weak demand from other countries, ongoing inflation issues in advanced economies, and lasting geo-political tensions.

Overview of Malaysia's Economy

Malaysia's Gross Domestic Product (GDP) moderated to 2.9 per cent in the second quarter of 2023 after registering a growth of 5.6 per cent in the previous quarter. Correspondingly, monthly economic performance grew marginally at 0.7 per cent in April, picked up 5.6 per cent in May and eased to 2.4 per cent in June 2023. The robust growth in May 2023 was attributed to temporary pick-ups in global demand and household consumption. In terms of quarter-on-quarter seasonally-adjusted GDP, it increased by 1.5 per cent (Q1 2023: 0.9%) in this quarter. The economic performance of 2.9 per cent in the second quarter of 2023 was driven mainly by the Services and Construction sectors (Table 1).

Table 1: Annual Percentage Change (%) of Malaysia's GDP by Kind of Economic Activity, 2021 – 2022 and Q1 2022 - Q2 2023

Kind of Economy Activity	2021	2022	2022				2023	
			Q1	Q2	Q3	Q4	Q1	Q2
GDP	3.3	8.7	4.8	8.9	14.1	7.1	5.6	2.9
Services	2.2	10.9	6.4	11.9	16.7	9.1	7.3	4.7
Construction	-5.1	5.0	-6.1	2.5	15.3	10.1	7.4	6.2
Manufacturing	9.5	8.1	6.7	9.2	13.1	3.9	3.2	0.1
Agriculture	-0.1	0.1	0.1	-2.3	1.2	1.1	1.0	-1.1
Mining & quarrying	0.9	2.6	-2.2	-1.7	9.1	6.3	2.4	-2.3

Source: Department of Statistics, Malaysia

The Services sector remained the main impetus of growth, rising 4.7 per cent (Q1 2023: 7.3%) in the second quarter of 2023. The favourable performance was attributed to sub-sectors such as Wholesale & Retail Trade (4.7%), Transportation & Storage (13.5%), and Business Services (10.7%). Nevertheless, several key sub-sectors, namely Food & Beverages, grew at a slower rate of 1.6 per cent (Q1 2023: 3.7%) while Finance and Insurance showed a decrease of 4.7 per cent (Q1 2023: 1.9%). On a quarter-on-quarter basis, seasonally-adjusted, the Services sector increased by 2.7 per cent (Q1 2023: 1.8%).

The Construction sector moderated to 6.2 per cent growth (Q1 2023: 7.4%), driven by positive growth in all sub-sectors, particularly in Civil Engineering (10.0%), Specialised Construction activities (6.4%), and Residential Buildings (6.1%). On a quarter-on-quarter, seasonally-adjusted basis, this sector increased by 4.8 per cent (Q1 2023: 2.9%).

Furthermore, the Manufacturing sector grew marginally by 0.1 per cent (Q1 2023: 3.2%) in this quarter. The modest performance of this sector was influenced by Non-metallic mineral products, Basic Metal & Fabricated Metal products (5.4%), Beverages & Tobacco products (8.8%), as well as Vegetable and Animal Oils & Fats and Food Processing (2.1%). Meanwhile, the major contributors in the Manufacturing sector, namely Electrical & Electronics products and Petroleum, Chemical, Rubber & Plastic Products registered decreases of 1.5 per cent and 1.6 per cent respectively. On a quarter-on-quarter basis, seasonally-adjusted, the Manufacturing sector increased by 0.6 per cent (Q1 2023: 0.5%).

On the contrary, the Agriculture sector declined by 1.1 per cent (Q1 2023: 1.0%), attributed to the contraction in the Oil Palm sub-

sector (-6.9%), influenced by El Nino phenomena. Nonetheless, Livestock, Rubber and Other Agriculture showed better growth in this quarter. This sector recorded a decrease of 3.6 per cent (Q1 2023: -2.5%) on a quarter-on-quarter seasonally-adjusted basis. Correspondingly, the Mining & Quarrying sector decreased by 2.3 per cent (Q1 2023: 2.4%), influenced by the Natural Gas and Crude Oil & Condensate sub-sectors, which contracted by 3.6 per cent and 1.5 per cent respectively. Quarter-on-quarter, seasonally-adjusted, this sector dropped 2.7 per cent (Q1 2023: -3.2%).

Private Final Consumption Expenditure and Gross Fixed Capital Formation continued to propel economic growth in this quarter (Table 2)

Table 2: Quarterly GDP Growth (%) by Type of Expenditure, 2021 – 2022 and Q1 2022 - Q2 2023

Types of Expenditure	2021	2022	2022				2023	
			Q1	Q2	Q3	Q4	Q1	Q2
GDP	3.3	8.7	4.8	8.9	14.1	7.1	5.6	2.9
Private final consumption expenditure	1.9	11.2	5.3	18.3	14.8	7.3	5.9	4.3
Gross fixed capital formation	-0.8	6.8	0.1	5.8	13.1	8.8	4.9	5.5
Government final consumption expenditure	6.4	4.5	6.9	2.3	6.5	3.0	-2.2	3.8
Export	18.5	14.5	12.3	15.9	21.5	8.6	-3.3	-9.4
Import	21.2	15.9	16.1	20.1	21.1	7.2	-6.5	-9.7
Net export	-4.0	-1.0	-28.9	-29.0	26.2	23.0	54.4	-3.7

Source: Department of Statistics, Malaysia

Private Final Consumption or Household Expenditure, which contributed 60.7 per cent to the GDP, moderated 4.3 per cent (Q1 2023: 5.9%), attributed to higher consumption in Housing, Water, Electricity, Gas & Other Fuels (6.3%), followed by Communication (7.1%) and Transport (6.1%) expenditure. Quarter-on-quarter, seasonally-adjusted, Private Final Consumption Expenditure posted an increase of 5.9 per cent (Q1 2023: 2.0%).

Gross Fixed Capital Formation (GFCF) recorded a better growth of 5.5 per cent (Q1 2023: 4.9%) in this quarter. The performance of GFCF was contributed by Structure (6.0%) and Machinery & Equipment (4.4%), as well as other assets (8.3%). GFCF by sector showed that both the Public and Private sectors recorded increases in the second quarter of 2023. In addition, the GFCF registered an increase of 4.7 per cent (Q1 2023: -1.4%) in a quarter-on-quarter seasonally-adjusted manner.

External sector posted that both Exports and Imports declined by 9.4 per cent (Q1 2023: -3.3%) and 9.7 per cent (Q1 2023: -6.5%) respectively, following weaker global demand for Merchandise Exports and Imports. However, Exports of Services increased, mainly supported by international Tourist arrivals. Net exports declined by 3.7 per cent as compared to an increase of 54.4 per cent in the preceding quarter.

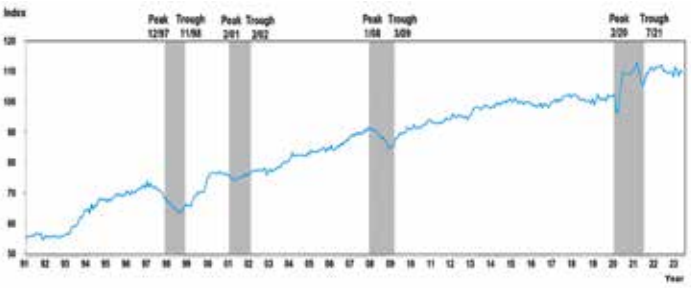
Malaysia's Current Account Balance (CAB) recorded a higher surplus of RM9.1 billion or 2.1 per cent to Gross Domestic Product (GDP) in the second quarter of 2023, as compared to RM4.3 billion (1.0% of GDP) in the previous quarter. Meanwhile, Financial Account posted a higher net outflow of RM11.6 billion as against RM2.4 billion in the preceding quarter. In the first half of 2023, the CAB reached a surplus of RM13.4 billion, while Financial Account recorded a net outflow of RM13.9 billion.

Malaysia's Merchandise Trade Performance in Q2 of 2023 declined for the first time since Q3 of 2020. Total Trade contracted 11.3 per cent as compared to the same period a year ago, with Exports and Imports having declined by 11.1 per cent and 11.5 per cent respectively. Meanwhile, the Trade Surplus went down by 8.8 per cent from the previous year, to RM54.1 billion. Malaysia's Trade Performance continued to deteriorate in July 2023, with Total Trade falling by 14.4 per cent from RM252.8 billion in July 2022 to RM216.4 billion, along with a decrease in Exports (-13.1%) and Imports (-15.9%). Meanwhile, the Trade Surplus rose 7.9 per cent as compared to July 2022 to RM17.1 billion, the 39th consecutive month of Trade Surplus.

The Supply and Demand for Labour remained stable in Q2 2023 as the economy continued to expand, although moderately driven by effective governance, improved consumer confidence, and better business conditions. Malaysia's Labour Market sustained its upward trend in Q2 2023, recording 16.73 million Labour Force, albeit at a slower growth of 2.8 per cent in Employment and a smaller decline of 9.5 per cent in Unemployed Persons. During the period, the Economic sector experienced an increase of 2.4 per cent in the number of jobs, though Job Vacancies decreased by 0.9 per cent, suggesting a reduction in job opportunities. Nonetheless, the favourable economic performance led to the creation of more jobs in Q2 2023 to cater to the needs of the industry. As for Labour Market Efficiency, Labour Productivity measures in terms of value-added-per-employment remained stable in Q2 2023. However, concerning value-added-per-hour-worked, there was a noticeable drop in Labour Productivity, signalling a potential decrease in overall Labour Market Efficiency.

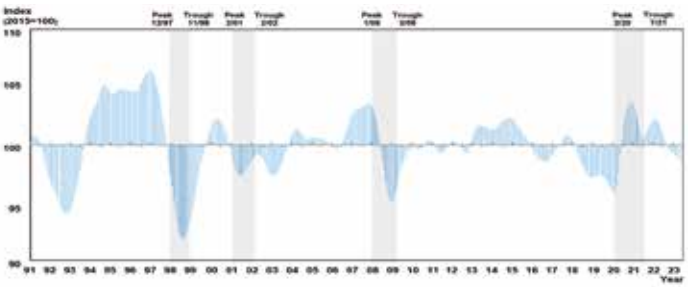
On foresight, the Leading Index (LI) declined 2.1 per cent in June 2023, recording 109.8 points as compared to 112.1 points in the previous year. The weakening performance was attributed to decreases in Real Imports of Other Basic Precious & Other Non-Ferrous Metals (-32.1%) and Real Imports of Semi-Conductors (-19.5%). Nevertheless, upticks were recorded by the Number of Housing Units Approved (68.2%), the Bursa Malaysia Industrial Index (7.0%), and the Number of New Companies Registered (1.2%). Concomitantly, the monthly change of LI decreased by 0.5 per cent in the reference month as compared to 1.7 per cent in May 2023. The decline in LI was under-pinned by the negative contributions of five (5) out of seven (7) components, especially the Number of Housing Units Approved (-0.5%) and Real Imports of Semi-Conductor (-0.4%). Looking at the smoothed long-term trend in June 2023, LI remained below the 100.0 point trend. This indicates that Malaysia's short-term economic outlook is likely to moderate, anticipating of the economic policy.

Chart 1: Leading Index (2015=100) and Business Cycle (Grey Shaded Areas), January 1991 to June 2023



Source: Department of Statistics, Malaysia

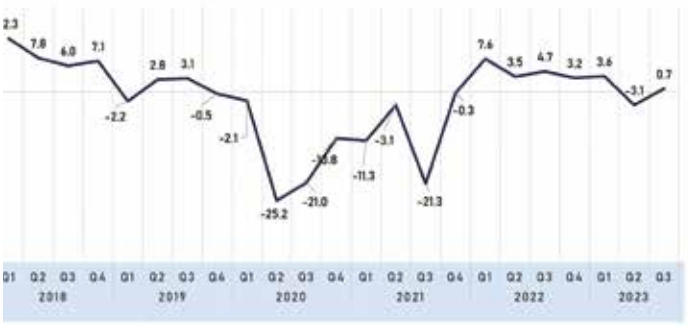
Chart 2: Leading Composite Index (Long Term Trend = 100) and Business Cycle (Grey Shaded Areas), January 1991 June 2023



Source: Department of Statistics, Malaysia

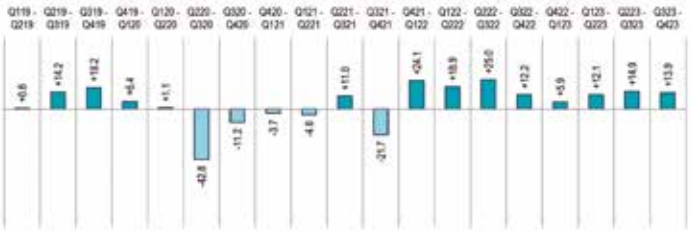
In the context of business tendency, businesses foresee an improving business situation for the third quarter of 2023 with a positive confidence indicator of 0.7 per cent as compared to -3.1 per cent in the second quarter of 2023. Across sectors, the Services and Industry sectors predict favourable business conditions, while the Construction and Wholesale & Retail Trade sectors remain pessimistic about the business performance in the third quarter of 2023. Looking ahead, businesses remain upbeat for the second half of 2023, albeit at a lower net balance of +13.9 per cent from +14.9 per cent recorded previously.

Chart 3: Quarterly Confi dence Indicator, Malaysia, 2018 – 2023



Source: Department of Statistics, Malaysia

Chart 4: Net Balance of Business Performance Expectation For Upcoming Six Months By Sector, Malaysia, 2019 – 2023



Source: Department of Statistics, Malaysia

The full publication of the MESR Volume 8/2023 can be downloaded from the DOSM website at www.dosm.gov.my

Acknowledgment

Source: Department of Statistics, Malaysia (DOSM)

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TEEAM-VTAR MOU Signing Ceremony

TEEAM signed a Memorandum of Understanding (MOU) with the VTAR Institute to foster collaboration in the field of Electrical Training and Education, during TEEAM's 71st AGM which was held on 28 May 2023 at the Kuala Lumpur Golf & Country Club (KLGCC). This win-win smart partnership aims to strengthen the quality of training for the PW2 and PW4 Wiremen Courses while also providing Scholarships for under-privileged students. This MOU between TEEAM and VTAR Institute represents a significant milestone in pro-actively advancing the electrical industry's educational standards in Malaysia. By combining TEEAM's vast expertise and highly specialised industry knowledge with VTAR's exceptional vocational training facilities, this timely partnership will ensure a comprehensive and practical learning experience for aspiring wiremen.

Under this collaboration, TEEAM and VTAR will work closely together to enhance the curriculum for PW2 and PW4 Wiremen Courses, incorporating the latest industry practices and technologies. The focus will be on equipping students with the necessary skills to meet the evolving demands of the Electrical and Electronics (E&E) sector. By aligning the Training Programmes with industry requirements, TEEAM and VTAR aim to produce highly-skilled and competent professionals who can contribute effectively to the nation's economic growth.

The then President, Dr. Siew Choon Thye, signed on behalf of TEEAM while Chairman Mr. Soon Mon Huay, signed for VTAR Institute. Both Ir. Dr. Ng Kok Chiang, the then TEEAM Honorary Secretary and Madam Tan Cheng Liang, VTAR Institute CEO, witnessed the Official Signing Ceremony.

This augurs well for the E&E industry. Congratulations!

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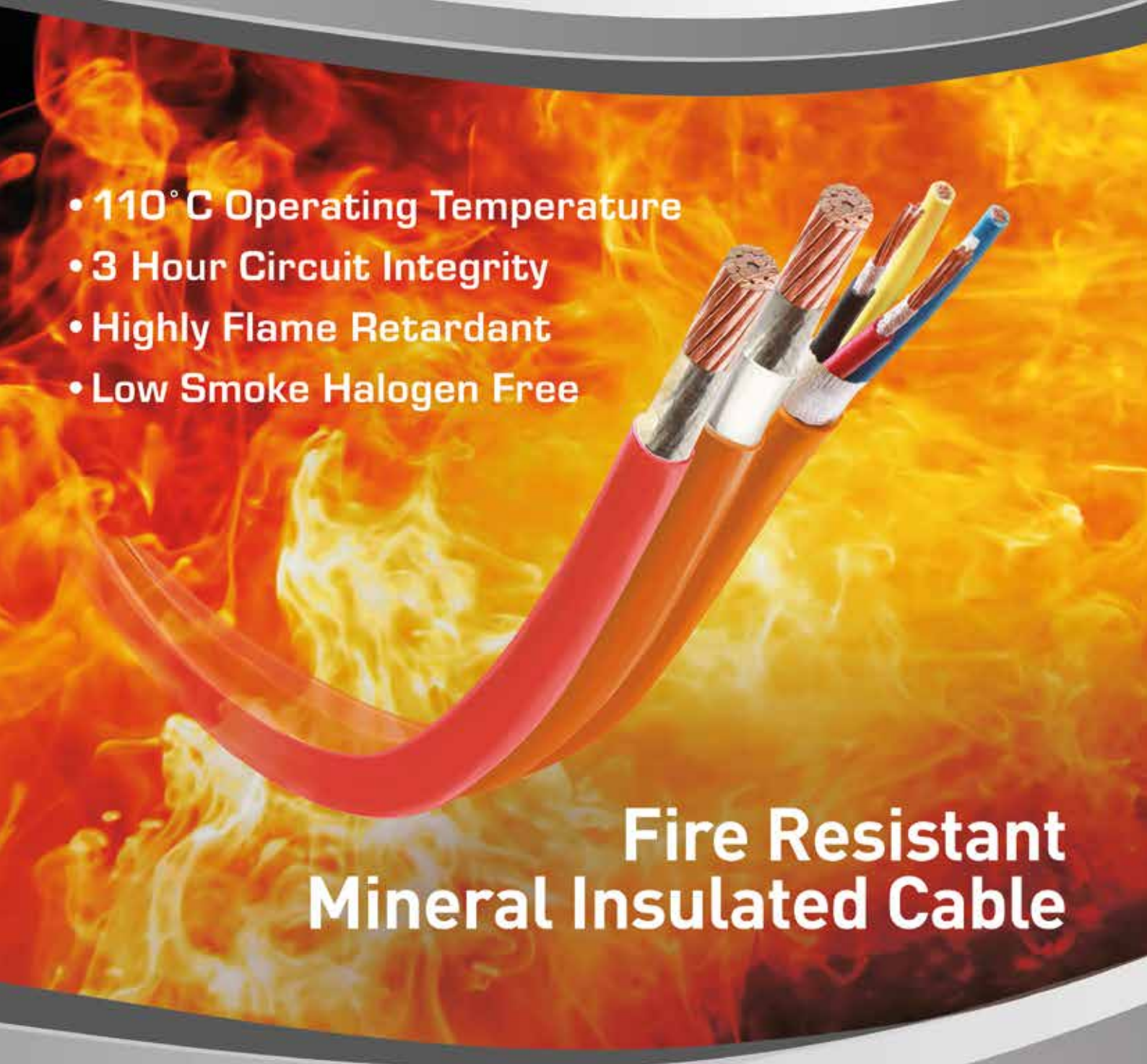

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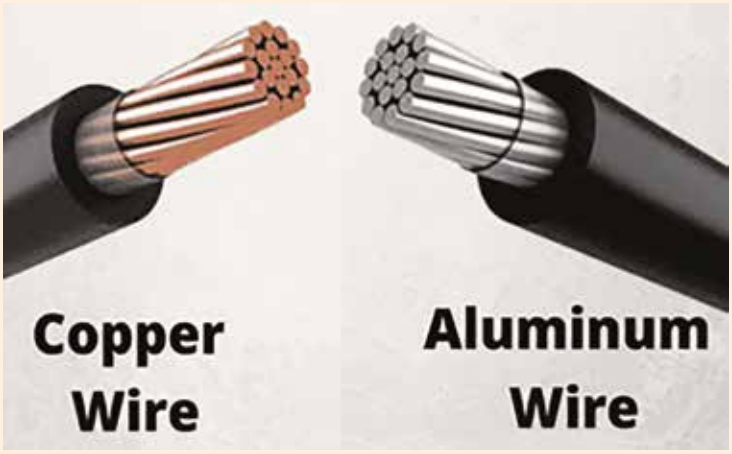
VITALink Fire Resistive Cables

Fire Resistant Cables with Aluminium Conductors?

Marmon Electrical
(a Berkshire Hathaway company)

Are Fire Resistant cables with aluminium conductors an appropriate design to use to ensure the reliable function of life safety and fire-fighting systems in buildings?

Today there are several manufacturers of fire-resistant cables made with aluminium conductors which have passed BS 6387 CWZ. On the face of it this seems strange, because the flame test temperature of BS 6387 C and Z tests is 950°C whereas the melting temperature of aluminium is only 660°C. It may surprise people more, that at least one of these manufacturers holds LPCB (Loss Prevention Certification Board) certification for their aluminium conductor fire-resistant cables to this BS 6387 CWZ test.



How these cable products can pass the cable flame tests is a matter of simple physics and thermal dynamics which has dire ramifications for the wire and cable industry and the safety of every single building which installs cables tested and/or certified to any of the above-mentioned standards.

First the physics: Flame resistance tests

BS 6387 CWZ is actually 3 tests: The **BS 6387 'C'** test is a 3-hour test conducted on a straight horizontal length of cable suspended in 2 or 3 metal hoops next to a 500mm long ribbon burner. The flame temperature is set to 950°C and the test runs with cables energised for 3 hours.

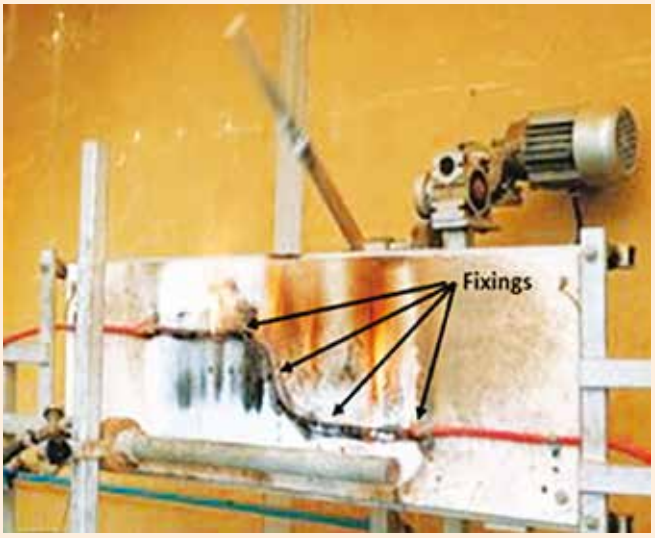
As can be seen in Picture 1, for larger conductor sizes, the ribbon burner does not have sufficient heat flux to heat all of the cable to 950°C because most of the heat energy convects away in air, conducts away along the conductors or radiates away. Only the cable part facing the burner sees a high temperature.

The **BS 6387 'Z'** test is a 15-minute test where the cable is mounted onto a non-conductive back-board which is fixed to a mounting frame with rubber shock absorbing dampers. Where the cable is greater than 20mm diameter, the cable is mounted in a U shape. The cable is fixed at approximately 200mm centres.

The test commences with a flame temperature of 950°C and runs for 15 minutes with a metal bar hitting the top of the back-board once every 30 seconds to simulate vibration, Pic 2.

As in the flame test C, the heat energy of the ribbon burner is insufficient to fully heat the whole cable sample to the intended flame temperature due to the proximity of sample to flame. Much heat convects away, is conducted into the back-board or simply radiates away.

The **BS 6387 'W'** test is the fire with water spray method. This is a 30-minute test and is conducted with a ribbon burner set with a flame temperature at only 650°C. Because 650°C is lower than the 660°C melting point of aluminium, it is possible that any aluminium conductor FR cable could pass this test.



Pic 2

The test commences with a flame temperature of 650°C and runs for 15 minutes. For the second 15 minutes the water sprinkler is turned on. If the water extinguishes the flame the test is continued with gas turned off.

BS 6387 C, W and Z tests allow a cable failure to be re-tested and if a subsequent 2 samples then pass the test, then the cable can be classified as passing the test.

For single-core cables with no metallic element, the cables tested to **BS 6387 and IEC 60331-3** are conducted in a stainless-steel conduit.

CRITIQUE

The key to this surprising paradox is not in the flame temperature of the test method, but the test method itself. Fundamentally, heat that is lost from an object is by convection, conduction and radiation. Where cable flame resistance tests are conducted on cable specimens, the size of the specimen compared to the heat flux generated by the flame has a significant bearing on the temperature the specimen can reach. In **BS 6387 and IEC 60331**, the flame is provided by a 500mm long gas ribbon burner.

These tests are conducted as bench-top tests in air, so convection plays a major part in dissipating the heat energy away from the specimen under test. For cables with larger conductors, both copper and aluminium are excellent conductors of heat, so a portion of the heat energy from the flame is conducted away along the conductor(s) of the cable.

All these tests set the flame temperature at the position of the thermocouple whereas the full specimen under test is not always positioned in line with this thermocouple. In the **Z test of BS 6387** only a few mm of the cable specimen will actually see a temperature even close to the required thermocouple flame temperature setting.

Making the whole situation worse is where single-core cables are tested to **BS 6387 CWZ or IEC 60331-3**, as this requires the use of Stainless-Steel conduits to provide a metallic element. In these tests, not only does the Stainless-Steel conduit additionally conduct heat away but provides a greater surface area to do so.

CONCLUSION

In Malaysia, **BS 6387 CWZ** is required to qualify the very fire-resistant cables which are needed to ensure that essential life safety and fire-fighting equipment in buildings keeps working during emergency to save lives and property.

Can we blame the test methods used for qualifying fire-resistant cables and systems? British Standards claim only that their standards are 'minimum requirements' and all include a disclaimer which states: *"the fire tests do not assess a fire hazard nor can the results of the tests alone guarantee safety".*

Can we blame the UKAS-registered cable certification organisations like LPCB? It seems not, because these organisations simply test products to the standard test methods requested by their paying clients and provided the manufacturer has an effective QA and consistent manufacturing system, they issue certification based on whether the cables pass or fail the respective tests. **There is no questioning of the efficacy or relevance of the test method itself or comment on fitness for purpose.**

The system of Standards bodies, who only write standards, AHJ's who adopt these standards into mandatory codes, manufacturers, installers, inspectors and specifiers is also structured so that in event of failure of these cables in situation, no one is held responsible!

Many professional designers' standard terms of appointment make specific reference to and waiver of fitness for purpose requirements.

In most cases, manufacturers and suppliers of products to a project will only claim the products made and supplied comply with respective product manufacturing and test standards. Often their terms and conditions of sale have clauses expressly excluding any general fitness for purpose.

In some cases, product or performance standards are embedded in building regulation and/or mandated by relevant authorities having jurisdiction, however many of these standards themselves include their own disclaimer, for example: In the case of fire-resistant cable test standards BS 6387 CWZ: *"the fire tests do not assess a fire hazard, nor can the results of fire tests alone guarantee safety".*

In summation:

- **Designers** in most cases require a waiver for design 'fitness for purpose'.
- **Installation contractors** often have contract acceptance clauses excluding 'fitness for purpose'.
- **Manufacturers generally** only claim compliance to respective product manufacturing and test standards, and generally have terms of sale excluding any 'Fitness for purpose'.
- **Certification and approval organisations (AHJ's)** only certify products to specific product and test standards.
- **Product test and performance standards** (fire-rated cables) have a disclaimer of 'fitness for purpose', and application standards claim these performances are minimum requirements.

In the aftermath of a disaster, the path to determine any negligence or liability often becomes convoluted. Is a product failure, which leads to a system failure, which leads to a loss of property and/or life, down to the negligence or failing of the manufacturer's product? Or any inadequacy in the respective manufacturing and test standards for the product? Or negligence of the project designer/specifier who may have specified the product or performance? Or any failing by the contractor who purchased and installed the product? Or the respective authority/authorities having jurisdiction who specified the required product or performance standards? Or the installation inspector (if any). Or the maintenance contractor? Or the building owner/project operator?

Regrettably, too often responsibility and liability belong to the building owner/operator who simply wanted a fit-for-purpose system in the first place, and also because he may not have the technical expertise, he had to employ professional designers for the project.

Now we face a situation of our own making. The cable industry has determined that because of the inherent weaknesses of some British Standard test protocols for fire-resistant cables, they can make aluminium conductor cables at cheap prices compared to copper designs, then get them tested and certified for use.

This is not conjecture -- it has already happened, and it's dangerous. Corrective measures need to be urgently implemented to prevent potential disasters and/or loss of life!

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State Associations News

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E-mail: pes233sabah@gmail.
Wedsite: www.pes-sabah.org

Factory Visit and TEEAM's 70th Anniversary Dinner

From 16 to 19 February 2023, the Sabah Electrical Association (PES) organised some Factory Visits to Kuala Lumpur. Amongst those PES visited were Magnum Pro Marketing Sdn Bhd, Linkk Busway Systems (M) Sdn Bhd, Mikro MSC Berhad, Oversea Lighting & Electric (M) Sdn Bhd, Megapro Metal Industries Sdn Bhd and CHINT Malaysia. In conjunction with the Factory Visits, PES had been cordially invited to attend the 70th Anniversary Dinner Celebration of The Electrical and Electronics Association of Malaysia (TEEAM). A total of 24 PES members and associates participated in the eye-opening and fruitful Factory Visits.

PES's 25th Silver Jubilee Anniversary Celebration

PES successfully celebrated its Silver Jubilee on 5 March 2023 at the Port View Restaurant, Hakka Association Hall, Tanjung Lipat, Kota Kinabalu, Sabah. Approximately 800 guests attended the Celebration Dinner from amongst PES's Members, Associates, Engineers, Consultants, Manufacturers, Suppliers, Developers, and Government departments. PES extended a big thank you to all their generous Sponsors and the dedicated Organising Committees, as well as to PES's members and guests who participated in the success of this event.

Leisure Outdoor Activity

On Sunday 19 March 2023, PES's Sports Chairman Mr. Foong June Choy, organised a fun-filled morning hike activity with PES's members and family at Bukit Botak, Sepanggar, Sabah. The main objective for this activity was for fellowship and bonding amongst PES's members and family. Despite the busy daily life of all, this was a good activity to help build a more balanced and healthier lifestyle.

PES's Annual General Meeting

PES's Annual General Meeting (AGM) was successfully held on 25 March 2023 at PES's registered office at Beverly Hills Plaza, Jalan Bundusan, Kota Kinabalu, Sabah. The PES AGM 2023 had 31 attendees. The attendees duly approved the minutes of the past AGM, followed by the presentation of the Annual Secretary and Treasurer Reports, which were presented by Mr. Ho Shi Yin and Ir. Alexander Richard respectively. The Secretary, Mr. Ho Shi Yin, presented the proposed amendments to PES's Constitution. PES's members at the General Meeting unanimously approved and accepted the presented proposed amendments. The President concluded the AGM and thanked all members present. The AGM was capped off by a refreshing lunch.

Leisure Outdoor Activity at Mandalipau, Papar

On 16 April 2023, PES's Sports Chairman, Mr. Foong June Choy, successfully organised a refreshing riverside picnic at Mandalipau White Water View and Fishpond, Papar, Sabah. It was a successful activity as many from amongst PES's members and friends eagerly turned up for this fun riverside picnic.

Convocation Ceremony of IKMKK

On 7 May 2023, PES was invited to attend the Institut Kemahiran Mara's, Kota Kinabalu (IKMKK)'s Convocation Ceremony in Sabah. The Vice President, Mr. Aldrin Wong, attended the ceremony on behalf of PES's President, Mr. Lawrence Yapp, at the Dewan Sri Kinabalu, IKMKK, Sabah.

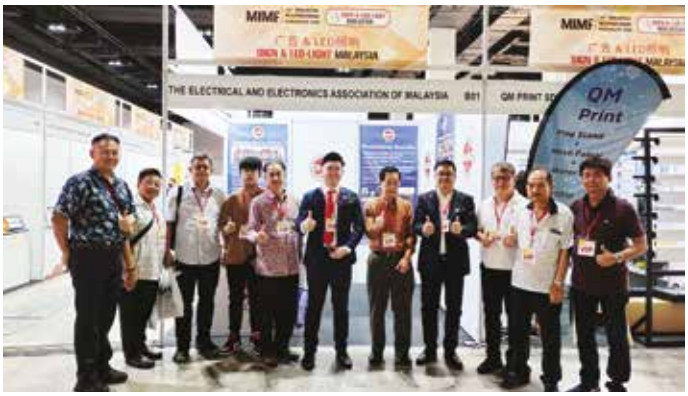
KTYS's Aidilfitri Open House

In conjunction with the Aidilfitri celebrations, PES's President, Mr. Lawrence Yapp, attended a Kupi-Kupi Aidilfitri Open House at the invitation of Kolej Teknologi Yayasan Sabah (KTYS) on 18 May 2023 at KTYS's Campus Sembulan, Kota Kinabalu, Sabah. It was a joyful occasion for all attendees!

Electrical Association of Sarawak & Sabah
No. 2A/F, 2nd Floor, Hardin Road, 96000 Sibu, Sarawak.
Tel: +6084-319 949 Fax: +6084-325 112, 346 114
E-mail: sibuccci@gmail.com

MIMF & LED-Lighting Malaysia 2023

A 10-member strong delegation from the Electrical Association of Sarawak & Sabah (EASS) led by its Chairman, Mr Hii Hua Chuon, extended strong support to the 34th Malaysia International Machinery Fair (MIMF), which featured LED-Lighting Malaysia 2023. They participated as VIP guests at the Forum and visited the Exhibition on 13 and 14 July 2023. TEEAM too had a great networking session with the EASS Delegation. A big thank you to EASS for their strong support!



ELECRAMA 2023

EASS visited the ELECRAMA 2023 Exhibition, which was held from 18 to 22 February 2023 at Noida's India Expo Mart, New Delhi. The highlight was the Reverse Buyers-Sellers Meet Business-Matching Sessions organised by the India Electrical & Electronics Manufacturers' Association (IEEMA). It was a good exposure to the Indian E&E market for the 10-member delegation of EASS.

The Perak Electrical Association
No. 12-A, Jalan Datuk Mahmud,
31650 Ipoh, Perak Darul Ridzuan.
Tel: +605 - 254 1502 Fax: +605 - 250 9145
E-mail: peaipoh@gmail.com

PEA's 60th Anniversary Dinner

The Perak Electrical Association (PEA) celebrated its 60th Anniversary on 9 September 2023. A grand Celebration Dinner was organised at the Exquisite Seafood Restaurant, Ipoh, Perak. Highlights of the Dinner included lion dance, cake-cutting, hitting the gong, presentation of cheques to schools and presentation of membership certificates. Members of the TEEAM Exco & Council also joined the Dinner. It was a very joyous and memorable occasion for all who attended!

Sarawak Electrical Association
2nd Floor, Lot 412, Lorong 11D,
Off Jalan Ang Cheng Ho, 93450 Kuching, Sarawak.
Tel: + 6019 - 886 5846 Fax : + 6082 - 45 1234
P.O. Box 16 , 93700 Kuching, Sarawak.
Email : sarawakelectrical@gmail.com

SAtCE Networking Reception

Kapitan Francis Chew, Chairman of Sarawak Electrical Association (SEA), was invited to attend the Sarawak Agrotourism Conference & Expo (SAtCE) Networking Reception which was held on 28 August 2023 at The Raintree Forest, Borneo Convention Centre in Kuching, Sarawak. SAtCE was a 3-day Conference held from 28 to 30 August 2023 that covered topics on global trends and regional policies in agrotourism, regenerative tourism, community-based food production, farm tourism and sustainability. It was successfully organised by Derrisen Sdn Bhd.

Energy Transition Conference 2023

SEA Vice Chairman, Dato' Sri Ir. Peter Lu, attended the much anticipated Energy Transition Conference 2023, which was organised by Tenaga Nasional Berhad (TNB) on 28 & 29 August 2023 at the Kuala Lumpur Convention Centre. TNB successfully brought together a whopping 2,000 domestic, regional and international stakeholders to share knowledge and solutions for a brighter and greener future!

Penang Electrical Merchants' Association
No. 171A, Malacca Street, 10400 Penang.
Tel: +604 - 229 0195 Fax: +604 - 228 4233
E-mail: pema_pg@yahoo.com Website: www.pema.org.my

PEMA's 75th Anniversary Dinner Celebration-Cum-Education Awards 2023

The Penang Electrical Merchants' Association (PEMA) celebrated its 75th Anniversary Dinner Celebration-cum-Education Awards 2023 on 29 July 2023 at the Setia Spice Convention Centre in Penang. The Dinner was graced by the Deputy Minister of Education, the Honourable (Yang Berhormat) Ms. Lim Hui Ying.

PEMA President, Ir. Darren Lee Weng Keen, thanked all the guests and members for their unwavering support in making the Celebration Dinner highly successful. Cake-cutting, lucky draws, entertainment and presentation of new membership certificates were amongst the highlights of the Dinner.

During the Dinner, PEMA Education Awards 2023 were presented to children of PEMA's members and children of PEMA's employees who had achieved outstanding results in the PT3, SPM and STPM Examinations. A total of 8 recipients were presented with certificates and cash totalling RM2,800. PEMA Education Committee Chairman, Dato' Ooi Kok Kee, thanked all PEMA members, organisations and individuals for their generous support.

TEEAM also gladly joined PEMA's Celebration Dinner. It was certainly a memorable occasion to cherish.

Persatuan Kekompetenan Penjaga Jentera & Pendawai Elektrik Perak (PKPPE)
13B, Medan Bendahara 2, Medan Bendahara,
31650 Ipoh, Perak
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The Committee Members of the Persatuan Kekompetenan Penjaga Jentera & Pendawai Elektrik Perak (PKPPE) attended the grand 60th Anniversary Dinner of PEA, which was celebrated on 9 September 2023 at the Exquisite Seafood Restaurant in Ipoh, Perak. The PKPPE Committee Members truly enjoyed the good food and the great networking!

Other State Association Members' contacts:

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No.7-01, Jalan Bentara Luar, Taman Iskandar,
80050 Johor Bahru, Johor Darul Takzim.
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E-mail: info@jbeea.com.my Website: www.jbeea.com.my

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E-mail: stantric68@gmail.com

Technical Visit to BSL Eco Energy

The TEEAM Exco & Council made an interesting Technical Visit to BSL Eco Energy on 4 August 2023 in Rawang, Selangor. They were warmly received by Mr. Lim Chi Haur (Managing Director) and Ms. Tan Ai Peng (Executive Director), and also by their strong technical team. The Exco & Council Members were briefed on BSL's Solar Safe, a Photo-voltaic Rapid Shutdown System, which is an R&D by Malaysians. It is a system designed for rapid shutdown of solar PV modules at the module level. Its primary purpose is to ensure fire safety as the system offers fire protection for solar panels installed on buildings. The rapid shutdown could be initialised by various circumstances such as the push of the manual control switch, IoT switch, when high temperature is detected, or when a fire is detected. Once shutdown action is triggered, the system is able to isolate all panels within a string, with open circuits. The BSL team later conducted an interesting demonstration of the innovative system.

Attendees from TEEAM were Ir Chang Yew Cheong (President), Ir. Chris Chew (Past President), Ts. Lim Sai Seong (Deputy President), Ir. Dr. Ng Kok Chiang (Vice President), Mr. Simon Leong (Honorary Secretary), Mr. Choo Wei Seng (Asst. Hon Treasurer & Safety Chairman), Mr. Rajasegaran Naidu (Business & Events Chairman), Tc. How Chee Seng (Asset & CSR Chairman), Mr. Derrick Wong (Digitalisation, Media & Publication Chairman), Ms. Joyce Phang (Council Member), Ms. Winnie Khong (Executive Secretary) and Mr. Ryan Liew (Guest).

This informative Technical Visit ended with a sumptuous Dinner hosted by BSL Eco Energy at the Keong Kee Seafood Restaurant. A big thank you to BSL Eco Energy for their warm hospitality!

Snapshots of the Technical Visit to BSL Eco Energy

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Power Quality - Harmonics Amplification Caused by Resonance and Risks of Overloading Capacitors (Part 2)

Alex Looi Tink Huey, Ir. Tay Siang Hui and Ir. Mohammad Rhaiz Bin Abdul Aziz

In our previous article (Part 1) in Suara TEEAM 83rd Issue, we've discussed the basics of Power Quality (PQ) and PQ disturbances, as well as the basics analysis of resonance condition. Harmonic resonance occurs when the harmonic frequency (source) generated by non-linear loads coincides with the power system (victim) natural frequency. In other words, for resonance to occur, there must be a **source** that emits a spectrum of harmonics current at different frequencies (integer multiple of the fundamental power frequency), and a circuit that has the **natural frequency** that **coincides** or is close to one of the harmonics spectrum.

"Resonance occurs when the harmonics source's frequency coincides with the victim's natural frequency".

Sources of Harmonics

The various sources of harmonics can be classified into three (3) major sources, which are: Static Power Converters (SPCs), Arc Furnaces, and Ferro-magnetic devices. SPC is a general classification for various types of converter topology such as Inverters, Cyclo-converters, Full-wave/Half-wave Bridge Rectifiers, Thyristor-controlled Rectifiers, etc. SPC forms the major bulk of the harmonics source as they are used predominantly in the control of loads as compared with other harmonics sources [1]. The majority of SPC circuits use Diodes, Thyristors, Insulated-Gate Bipolar Transistors (IGBTs), or Silicon Controlled Rectifiers (SCRs) to manipulate and control the flow of current. A rectifier circuit that converts AC to DC will have a pulsating waveform when the output does not have a filtering capacitor or inductor. A single-phase full-wave bridge rectifier using four (4) diodes/thyristors/SCRs will have two (2) pulses per cycle whereas a three-phase six (6) diode circuit (see figure below) will have six (6) pulses per cycle. For this reason, the classification of such circuits is named by their pulse number.

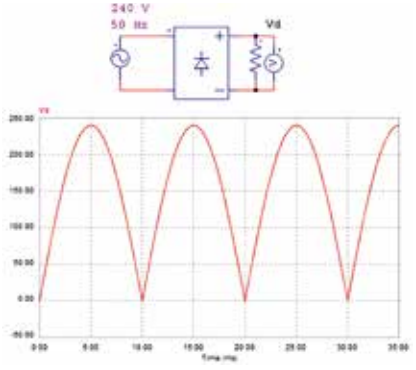

Figure 1: 2-Pulse Converter – Single-Phase Full Bridge Rectifier at system frequency of 50Hz

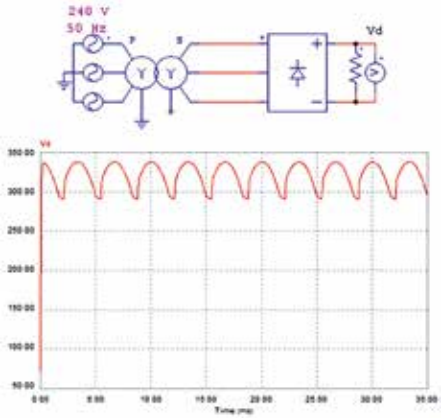

Figure 2: 6-Pulse Converter – Three-Phase Full Bridge Rectifier at system frequency of 50Hz

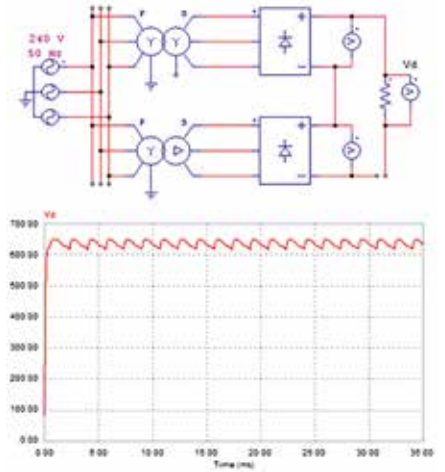

Figure 3: 12-Pulse Converter – 2 x Three-Phase Full Bridge Rectifier at system frequency of 50Hz

The reason why we study pulse numbers is that, for a given pulse number, we can predict the order of harmonics generated from the circuit. From a theoretical standpoint, a three-phase rectifier with a constant DC current load will draw a three-phase square wave with 120 degrees constant current conduction alternating between the positive and the negative cycle with a 60 degrees blank time. By means of Fourier analysis, this waveform can be de-constructed to sine waves with the odd harmonics spectrum extended to infinity (except for triplens). With this generalisation of SPC in terms of the number of pulses, the current drawn will have the following harmonics order:

$$h = kq \pm 1$$

where:

h = harmonics number (integer multiple of the fundamental)
k = any positive integer
q = pulse number of the converter

For the theoretical cases, the harmonics current generated for such circuits are based on the following formula:

$$I_h = I_1 / h$$

where:

I_h = harmonics current magnitude
I_1 = fundamental current magnitude
h = harmonics order

The available harmonics order from 2-Pulse to 18-Pulse circuits is summarised in the table below.

Table 1: 2-Pulse to 18-Pulse circuits harmonics order

Pulse	Characteristic Harmonics
2	3^{rd}, 5^{th}, 7^{th}, 9^{th}, 11^{th}, 13^{th}, 15^{th}, 17^{th}, 19^{th}, …
6	5^{th}, 7^{th}, 11^{th}, 13^{th}, 17^{th}, 19^{th}, 23^{rd}, 25^{th}, …
12	11^{th}, 13^{th}, 23^{rd}, 25^{th}, 35^{th}, 37^{th}, …
18	17^{th}, 19^{th}, 35^{th}, 37^{th}, 53^{rd}, 55^{th}, …

These are the theoretical values of the harmonics generated by different pulse number circuits. In real life, the current drawn will not be a square wave due to the circuit (source or load) inductance and controlled switching angle of the thyristor which retards the commutation that depends on the load condition and control algorithm. The load current will have a much smoother and rounder edge with lower harmonics current in percent of the fundamental. IEEE-519 standard provides a useful table of a typical static power converter's pulse number vs harmonics % at different orders.

Table 2: Harmonics source for Static Power Converters p.u.

Hamonic Order	5	7	11	13	17	19	23	25
6 pulse	.175	.11	.045	.029	.015	.01	.009	.008
12 pulse	.026	.016	.045	.029	.002	.001	.009	.008
18 pulse	.026	.016	.007	.004	.015	.01	.001	.001
24 pulse	.026	.016	.007	.004	.002	.001	.009	.008

Understanding the pulse number of the SPC serves as a valuable tool to estimate the harmonics in the system (or, by looking at the harmonics waveform, one can predict the type of loads that is being measured).

"By knowing the pulse number of a Static Power Converter, we can predict the source's harmonic frequency".

In modern households, Switch Mode Power Supplies (also part of the SPC family) is the most prevalent source of harmonics as it provides voltage to electronic equipment [1]. It exists in our mobile phone-chargers, TVs, TV set-top boxes, computers, air-conditioners, Internet routers/switches, LED drivers, etc. The IEEE 519 standard also

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provides a useful table for this harmonics source, as shown below. One would assume that, as the current drawn from these devices is small, the harmonics pollution would not be significant. On the contrary, due to the inherent nature of the rectifier circuit, the harmonics from each and every one of these devices are additive as it only draws non-sinusoidal current at the peak of every voltage cycle (in phase). Fortunately, most of the equipment that we purchase is certified with the CE mark where it implicitly means that it complies with IEC 61000-3-2 which ensures that the manufacturer of these electronic devices will build-in the harmonics filtering/ limiting solution.

Table 3: Spectrum of Typical Switch Mode Power Supply (IEEE Std 519 – 1992)

Harmonic	Magnitude	Harmonic	Magnitude
1	**1.000**	**9**	**0.157**
3	**0.810**	**11**	**0.024**
5	**0.606**	**13**	**0.063**
7	**0.370**	**15**	**0.079**

The Arc Furnaces operation can be divided into two (2) phases from the harmonics perspective. One is the melting phase (active arc) and the other is the refining phase (stable arc). Again, the typical harmonics information is provided by the IEE 519 standard as follows:

Table 4: Harmonic Content of Arch Furnace Current at Two Stages of Melting Cycle (IEEE Std 519 – 1992)

	Harmonic Current % of Fundamental				
	Harmonic Order				
Furnace condition	2	3	4	5	7
Initial melting (active arc)	7.7	5.8	2.5	4.2	3.1
Refining (stable arc)	0.0	2.0	2.5	2.1	0.0

Ferro-magnetic devices such as transformers, motors, generators, etc., do not have significant harmonics amplitudes compared with SPCs and arc furnaces, unless saturation occurs.

Impedance, Capacitance, and Inductance

In a typical electrical circuit, it consists of inter-connection of resistive, capacitive, inductive, and sometimes non-linear elements. For example, motor loads and cables are formed by inductive and resistive combination of elements.

The effective impedance, Z, for an alternating current circuit, is a combination of resistance and reactance (can be either inductive or capacitive). This impedance value is dependent on the frequency or, stating in another way, impedance is a frequency-dependent resistor. For a capacitor and inductor, it is modelled under the following equation:

For capacitor, the impedance is $X_C = \frac{1}{j\,\omega\,C}$

For inductance, the impedance is $X_L = j\,\omega\,L$

where $\omega = 2\,\pi\,f$

Where

f is the frequency
C is the capacitance in the unit F, Farad
L is the inductance in the unit H, Henry
j is the imaginary number

As discussed above, capacitive reactance is inversely proportional to frequency, therefore the impedance offered to the voltage harmonics decreases as the harmonics order increases. Thus, with a continuous supply of distorted voltage generated by non-linear elements, the capacitors can draw significant current that could damage them [3].

Resonance

Resonance occurs in a circuit at a particular frequency when the combination of inductance and the capacitance of the circuit causes the oscillating flow of current at resonance frequency. In other words, resonance occurs when the inductive and capacitive reactances are equal [3]. Resonance can be represented by the mathematical equation below:

Resonance condition occurs at

$$X_C = X_L$$

$$\omega L = \frac{1}{\omega C}$$

$$\rightarrow \quad 2\,\pi\,f\,L = \frac{1}{2\,\pi\,f\,C}$$

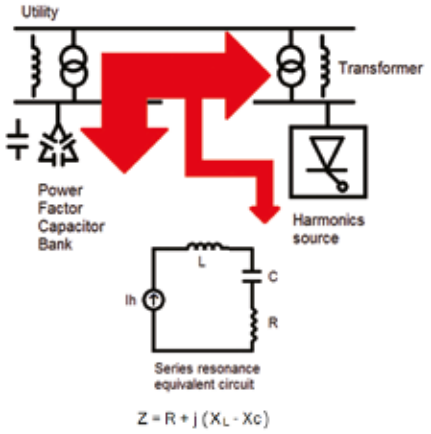
$$\rightarrow \quad f_{resonance} = \frac{1}{2\,\pi\,\sqrt{L\,C}}$$

Resonance can be formed by capacitors and inductors connected in series or in parallel. In a power system, the predominant of its inductance comes from the cable's inductance, transformer windings, and motor windings. The capacitance comes from the stray capacitance of the cables and power factor correction capacitors.

Series Resonance

Series resonance can occur as depicted in Figure 4 below, where the external harmonics source sees the inductance of the circuit (as proxies by the combined distribution transformers) in series with the capacitor (as proxies by the power factor capacitor bank). The equivalent series resonance circuit and its derivation of circuit impedance as seen by the harmonics source is shown below.

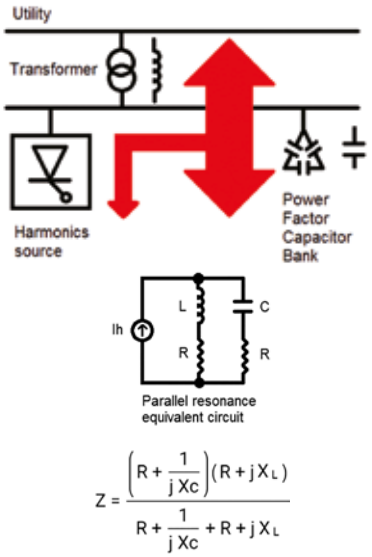
Figure 4: Single-Line-Diagram of Series Resonance



Parallel Resonance

Parallel resonance can occur as illustrated in Figure 5 below where the harmonics source sees the inductance of the circuit (as proxies by the distribution transformer) in parallel with the capacitor (as proxies by the power factor capacitor bank). The equivalent parallel resonance circuit and its derivation of circuit impedance as seen by the harmonics source is shown below. Every time the power capacitor bank switches in and out due to the demand from the required reactive power, the circuit's natural frequency will change accordingly. At a given harmonics frequency in any system where a capacitor exists, there will be a cross-over point where the inductive and capacitive reactances are equal [2]. This cross-over point is called the parallel resonant point. Harmonics resonance results in very high harmonics currents and voltages at the resonant frequency, which can cause detrimental effects to the power system.

Figure 5: Single-Line-Diagram of Parallel Resonance



$$Z = \frac{\left(R + \frac{1}{j\,Xc}\right)(R + j\,X_L)}{R + \frac{1}{j\,Xc} + R + j\,X_L}$$

Analysis of Circuit for Parallel Resonance

For a simple method to evaluating the circuit's parallel resonance natural frequency, we need to have the following information or its derivation of it, which are:

1. The circuit inductance reactance: power systems are primarily inductive at the fundamental frequency, and the equivalent impedance is sometimes called the short-circuit reactance [4]. This can be proxy by the short-circuit power at a particular system voltage as shown below.

The three phase balanced short circuit power, $S_{3\Phi\,SC} = \frac{V_{LL}^2}{Z}$

Where $Z = \sqrt{R^2 + X_L^2}$

Typically, the circuit inductance is much greater than the resistance where

$$X_L >> R$$

Thus the resistance can be ignore and the impedance is

$$Z = X_L$$

and

$$X_L = 2\,\pi\,f_{sys}\,L$$

$$S_{3\Phi\,SC} = \frac{V_{LL}^2}{2\,\pi\,f_{sys}\,L}$$

$$\rightarrow \quad L = \frac{V_{LL}^2}{2\,\pi\,f_{sys}\,S_{3\Phi\,SC}}$$

2. The circuit capacitance reactance: power factor correction capacitor bank can significantly alter the power system impedance variation with frequency [4]. While the reactance of circuit inductance increases proportionately to frequency, capacitive reactance decreases proportionately. Thus, capacitors are particularly sensitive to harmonics currents. The dominant capacitance is the power factor correction capacitor bank including its various switching combinations, and its value can be calculated as follows:

For power factor capacitor, its values are typically quoted in reactive power at a rated voltage. We need to convert it into it's effective reactive power at the system voltage before using the following formula to find it's capacitance.

$$Q_{eff} = \frac{V_{LL}^2}{Z}$$

Where the impedance of the capacitance is given by

$$Z = Xc = \frac{1}{2\pi f_{sys} C}$$

Substituting it yields

$$Q_{eff} = \frac{V_{LL}^2}{\left(\frac{1}{2\pi f_{sys} C}\right)}$$

$$= V_{LL}^2 \, 2\pi f_{sys} C$$

$$\rightarrow C = \frac{Q_{eff}}{V_{LL}^2 \, 2\pi f_{sys}}$$

Were:

f_{sys} : Power system frequency in Hertz [Hz]
C : Capacitance of the circuit
L : Inductance of the circuit
X_C : Impedance of capacitance of the circuit
X_L : Impedance of inductance of the circuit
Q_{eff} : Effective reactive power (at system voltage)
V_{LL} : Line-to-line voltage
Z : Impedance
$S_{3Øsc}$: Three-phase balanced short-circuit power

By putting it all together:

Again, at the circuit's natural frequency

$$f_{resonance} = \frac{1}{2\pi\sqrt{LC}}$$

$$= \frac{1}{2\pi\sqrt{\left(\frac{V_{LL}^2}{2\pi f_{sys} S_{3\Phi SC}}\right)\left(\frac{Q_{eff}}{V_{LL}^2 \, 2\pi f_{sys}}\right)}}$$

$$= f_{sys}\sqrt{\frac{S_{3\Phi SC}}{Q_{eff}}}$$

We can calculate circuit's resonance frequency in order of the harmonics by dividing the resonance frequency $f_{resonance}$ by the system frequency f_{sys}

$$f_{resonance} = f_{sys}\sqrt{\frac{S_{3\Phi SC}}{Q_{eff}}}$$

$$\rightarrow \frac{f_{resonance}}{f_{sys}} = \sqrt{\frac{S_{3\Phi SC}}{Q_{eff}}}$$

$$\rightarrow h = \sqrt{\frac{S_{3\Phi SC}}{Q_{eff}}}$$

The above calculations illustrate how parallel resonant frequency is computed.

Case Study

An electrical installation at a Mall is being supplied by a 415VAC main switchboard where the short-circuit current at the main switchboard busbar is rated at 35kA. A power factor correction capacitor bank connected to the main switchboard is equipped with a capacitor bank of 600kvar capacity rated at 525VAC.

As it is a Mall selling predominantly consumer electronics equipment and devices, we can adopt the IEEE 519 standard table for Switch Mode Power Supply (refer to Table 3 above) to determine the harmonics source possibly emitting from such loads, as shown below.

Subsequently, we will need to convert the power factor correction capacitor bank to its effective kvar value at the system voltage of 415VAC.

$$Q_{eff}, \text{effective kvar} = \left(\frac{415VAC}{525VAC}\right)^2 (600kvar)$$

Q_{eff}, effective kvar = 375kvar at 415VAC

Next, we will convert the short-circuit current into short-circuit power as follows:

$$I_{sc\ 3\text{-}phase} = (\sqrt{3})(415VAC)(35kA)$$

$$I_{sc\ 3\text{-}phase} = 25.16MVA$$

Finally, substituting them into the formula:

$$h = \sqrt{\frac{I_{sc\ 3\text{-}phase}}{Q_{eff}}}$$

$$h = \sqrt{\frac{25{,}610kVA}{375}}$$

h = 8.26 order

"Capacitors do not cause harmonics, but with the interaction with service transformers, they (the capacitors) will aggravate potential harmonics problems".

From here, we can see that the circuit's resonance frequency, h, will occur at about the 8th order harmonics (or about 400Hz and onwards for a 50Hz system nominal frequency) and above, and the Switch Mode Power Supply magnitude of 9th order harmonics current flow into the circuit could be catastrophic. If the circuit's resonance frequency, h, is close to the values of the harmonics generated by non-linear loads (in this case, Switch Mode Power Supplies), then the resonance circuit will significantly increase harmonics distortion. It is important to note that capacitors do not cause harmonics, but with the interaction with service transformers, it will aggravate potential harmonics problems.

Conclusion

Installing a power factor correction capacitor bank is one of the lowest cost solutions to mitigate low power factor issues caused by inductive loads. However, proper study and assessment are required to prevent parallel resonance which in the end may shorten the life of the capacitor bank due to overloading, and amplification of harmonics currents with high voltage distortion [5].

Harmonics filters can be installed to by-pass harmonics currents or block them from entering the power system [6]. Harmonics filters are classified into passive and active types. Passive filters are a combination of passive inductance, capacitance, and resistance components tuned to the harmonics frequencies which are to be attenuated. Active filters on the other hand, rely on active power conditioning to compensate for undesirable harmonics condition using power electronic switching devices to inject harmonics currents with complimentary magnitudes, frequencies, and phase shifts into the power system.

It is the goal of the designer or specifier to ensure that the circuit's natural frequency does not coincide with the harmonics generated by the non-linear loads or alternatively cancel off the harmonics generated by the non-linear loads.

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Ir. Mohammad Rhaiz Bin Abdul Aziz *graduated with a Bachelor's Degree in Electrical & Electronics Engineering and Master of Electrical Engineering from Universiti Tenaga Nasional (UNITEN). He is a certified Professional Engineer with Practising Certificate from the Board of Engineers Malaysia (BEM). He is also a Member of the Institution of Engineers, Malaysia (IEM). Currently, he is working as a Manager (Distributed Generation) at Tenaga Nasional Berhad (TNB). His responsibilities include conducting confirmation connection check studies, reviewing technical drawings, and managing Testing and Commissioning (T&C) applications for RE application to TNB.*

TEEAM & Radius - Smart Collaboration on GPS & Shell Fuel Card

TEEAM signed a Memorandum of Understanding (MOU) with Radius Business Solutions (Malaysia) Sdn Bhd, an esteemed TEEAM member, to foster win-win partnership collaboration to offer Corporate Fuel Cards and Telematics GPS Tracking System services to benefit TEEAM members. The MOU was inked at TEEAM's 71st AGM which was held on 28 May 2023 at the Kuala Lumpur Golf & Country Club (KLGCC).

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Radius offers state-of-the-art GPS Tracking Systems that provide real-time visibility and control over your fleet of vehicles. With their advanced features, members can monitor their vehicles' locations, optimise routes and enhance overall fleet performance. This revolutionary technology helps you reduce fuel consumption, increase productivity and improve customer satisfaction.

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TEEAM Academic Excellence Awards 2022

***Thumbs Up!** - Our heartiest congratulations to all the awards recipients.*

After two long years of pause, the TEEAM Academic Excellence Awards Ceremony was successfully held in conjunction with TEEAM's 71st Annual General Meeting & Election 2023 on 28 May 2023 morning at the Kuala Lumpur Golf & Country Club (KLGCC). The event started with a welcome speech by the then Education, Research & Awards Committee Vice Chairman, Mr. Albert Tan Tin Yau, followed by the then TEEAM President, Dr. Siew Choon Thye's speech. In his speech, Dr. Siew congratulated all the awardees and highlighted that the achievements were not merely personal victories but also a reflection of the commitment and support of the families and teachers. "Your success highlights the collaborative efforts of parents, educators, and mentors who have worked tirelessly to shape your academic journey. May this recognition serve as a catalyst for future achievements, and may you continue to strive for greatness in all that you do."

A total of eight awards, including monetary rewards and certificates of excellence, were presented to children of TEEAM members and also children of members' employees for their remarkable achievements in their public examinations. The awards were presented by Dr. Siew Choon Thye together with Mr. Albert Tan Tin Yau. The ceremony serves as a testament to TEEAM's commitment as an caring Association to foster academic excellence and help nurture the leaders and innovators of tomorrow. Our belief in the power of education and the importance of intellectual growth drives us to recognise and applaud the incredible efforts of these bright individuals who will be future leaders. Our heartiest congratulations to all the award recipients and proud parents! Thumbs Up!

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Applications are invited from children of TEEAM members and/or children of their qualified employees who have excelled in the year 2022 public examinations as stipulated below, to apply for the TEEAM Academic Excellence Awards 2023. Applicants should have attained the minimum results as prescribed below:

(i) Number of Awards

1. SPM - 4 Awards
2. STPM - 2 Awards
3. IGCSE O-Level - 4 Awards
4. Cambridge A-Level - 2 Awards
5. UEC Junior Middle Level - 5 Awards
6. UEC Senior Middle Level - 2 Awards

(ii) Minimum Qualification Requirement

1. SPM – minimum 5As (Must be A+ or A) out of the 6 core subjects
   Bahasa Malaysia, English, Pendidikan Moral/Pendidikan Islam, Mathematics, History and Science
2. STPM – minimum CGPA 3.5
3. IGCSE O-Level – minimum 5As
4. Cambridge A-Level – B and above for the best 3 subjects
5. UEC Junior Middle Level – minimum 5As to be eligible
6. UEC Senior Middle Level – B and above for the best 4 subjects

(iii) Other Requirements

The member who submits the application(s) for the TEEAM Academic Excellence Awards should have been a member of TEEAM since 2021 and not in arrears of subscription. For children of company's employees, the employees should have served the company for at least 2 years proceeding to the application. Each member may submit a maximum of TWO applications for each category. All applications are to be made on prescribed form attached. Those who are eligible to apply are not guaranteed of an award. The number and value of each award will depend on the decision of the Committee which is final and no correspondence will be entertained. **Closing date is 31 October 2023.**

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HGM 9510

Marine Engine Controller

HMC 9000A

ATS CONTROLLER

ATS Control Module

HAT 560N

HAT 700B

HAT821

HAT832

HAT833

SmartGen ATS control modules can be utilised to control Type PC, CB & CC Auto transfer switching equipment to IEC60947-6-1.

Automatic switching for two or three power sources with coupler or/& with Generator/UPS can be program.

1. HAT 821 controller - Two Utilities sources with bus tie controlling two main circuit breakers & Bus Tie breaker
2. HAT 832 controller - Two Utilities sources with GenSet/UPS source using two tier transfer switching
3. HAT 833 controller - Two Utilities sources with GenSet/UPS source controlling three Main circuit breakers

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5

TEEAM SCHOLARSHIP PROGRAMME 2023

TEEAM invites applications from Malaysian citizens who are children of TEEAM members and/or children of their qualified employees to apply for the TEEAM Scholarship. The TEEAM Scholarship programme is applicable only to students who will be or are currently pursuing full time degree courses in **Electrical and/or Electronics Engineering** recognised by the Board of Engineers Malaysia at any of the following local public or private universities/institutions of higher learning in Malaysia:

1. **Universiti Malaya**
2. **Universiti Kebangsaan Malaysia**
3. **Universiti Sains Malaysia**
4. **Universiti Putra Malaysia**
5. **Universiti Teknologi Malaysia**
6. **Universiti Malaysia Sarawak**
7. **Universiti Malaysia Sabah**
8. **Universiti Teknologi MARA**
9. **Universiti Multimedia**
10. **Universiti Teknologi Petronas**
11. **Universiti Tenaga Nasional**
12. **Universiti Selangor**
13. **Universiti Teknikal Malaysia Melaka**
14. **Universiti Malaysia Perlis**
15. **Universiti Malaysia Pahang**
16. **Universiti Tunku Abdul Rahman**
19. **Monash University in Malaysia**
20. **Kolej Uniti Negeri Sembilan**
21. **Kolej Bandar Utama**
22. **Curtin University of Technology in Malaysia**
23. **Prime College**
24. **Swinburne University of Technology Sarawak**
25. **The University of Nottingham Malaysia Campus**
26. **Kuala Lumpur Infrastructure University College**
27. **KDU College**
28. **International Islamic University Malaysia**
29. **Terengganu Advanced Technical Institute**
30. **UCSI University**
31. **SEGi University**
32. **Asia Pacific University**
33. **Heriot-Watt University Malaysia**
34. **Taylor's University**
35. **Al-Madinah International University**
36. **INTI International University**
39. **Nilai University**
40. **The Asian Institute of Medicine, Science and Technology University**

Eligibility

Applicants with offer of a seat for full time degree course in Electrical and/or Electronics Engineering at the above universities/institutions.

ii. Parent must be member of TEEAM since 2021. For children of company's employees, the employees should have served the company for at least 2 years preceding to the application.

iii. Household total income of not more than RM6,000 per month.

iv. Applicants should possess excellent academic qualifications as well as extra curricular activities.

v. Undergraduates with outstanding results may also apply.

vi. Must not be bonded or in receipt of any financial aid or awards from other organisations.

Value of Scholarship

Each scholarship is worth RM 6,000 per annum (and is tenable for the minimum period required by the recipient to complete the course).

Applications

All applications shall be made only on prescribed form. Please note that the Committee's decision is final and no correspondence will be entertained.

Closing Date

Completed application should reach TEEAM by **31 October 2023**

Please email your application to teeam52@gmail.com
For any enquiry, please contact the TEEAM Secretariat at 016-283 9023.

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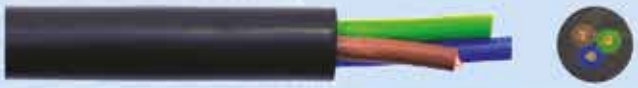

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New Members

The following new members have been approved and accepted by the TEEAM Council from February 2023 – September 2023. A warm welcome to all the new members and special appreciation is extended to those who introduced these new members. For those who are not yet members, why wait? Join us and find out how our Association can offer our value-added services to you and your highly esteemed Companies!

Safeguards Oceanic Sdn Bhd
No. 50-2, Jalan Medan Setia 2,
Bukit Damansara, 50490 Kuala Lumpur.
Tel: +603-7890 3955
Fax: +603-7890 3958
E-mail: lee@mgt.safeguards.com.my
Website: https://www.oceanic.com.my/about-us-2/
Contact Person: Mr Chong Wei Shin
Business: Logistics forwarder.

ETD Energy Sdn Bhd
Lot No. 4, Jalan P/13, Kawasan Perindustrian MIEL,
Bangi Phase 5, Section 10,
43650 Bandar Baru Bangi, Selangor Darul Ehsan.
Tel: +603-8927 5519 Fax: +603-8927 5210
E-mail: etd_energy@etd.com.my
Website: https://www.etdenergy.com.my/
Contact Person: Mr Lim Cho Yan
Business: Electrical supplies & engineering services.

Steerix Sdn Bhd
No. 1-6, Jalan Cenuk 1, Prima Avenue 3,
47170 Puchong, Selangor Darul Ehsan.
Tel: +603-8082 0194
E-mail: info@steerix.net
Website: www.steerix.net
Contact Person: Mr Ragavan Krishnamoorthy
Business: Engineering services - design, training and consultation for E&E companies.

ABX Express (M) Sdn Bhd
Lot 651, 1st Floor, Jalan Subang 1,
Taman Perindustrian Sg. Penaga,
47600 Subang Jaya, Selangor Darul Ehsan.
Tel: +603-8084 3111
E-mail: janson.tan@kerrylogistics.com
Website: https://my.kex-express.com/
Contact Person: Mr Janson Tan Woei Herng
Business: Express logistics service provider (domestic & international)

Aathaworld Sdn Bhd
Level 18.02, KPMG Tower, 8, First Avenue, Bandar Utama,
47800 Petaling Jaya, Selangor Darul Ehsan.
Tel: +6011-7001 1003
E-mail: info@aathaworld.com
Website: www.aathaworld.com
Contact Person: Mr Jay Chan
Business: Building contractor & materials supplier.

WEG South East Asia Sdn Bhd
No. 22, Jalan Utarid U5/26, Mah Sing Industrial Park,
40150 Shah Alam, Selangor Darul Ehsan.
Tel: +603-7859 1626 Fax: +603-7859 1623
E-mail: carol@weg.net
Website: www.weg.net
Contact Person: Ms Carol Ong Khim Hong
Business: Geared motor & automations.

Letromec Industries (Kuala Lumpur) Sdn Bhd
No. 2A, Jalan MJ 14, Taman Industri Meranti Jaya,
47120 Puchong, Selangor Darul Ehsan.
Tel: +603-8063 0270 Fax: +603-8063 0276
E-mail: sales-kl@letromec.com
Website: www.letromec.com
Contact Person: Mr Hong Eng Khong
Business: Total solutions provider in factory automation components & control devices.

Waterco (Far East) Sdn Bhd
Lot 832, Jalan Kusta, Kawasan Perindustrian SB Jaya,
47400 Sungai Buloh, Selangor Darul Ehsan.
Tel: +603-6145 6000 Fax: +603-6145 6001
E-mail: zao.cheong.koo@waterco.com.my
Website: www.waterco.com.my
Contact Person: Mr Koo Zao Cheong
Business: Manufacturer of swimming pool system, pool & water treatment.

Areta Energy Services Sdn Bhd
B3-5-7, Block B Solaris Dutamas,
No. 1, Jalan Dutamas 1, 50480 Kuala Lumpur.
Tel: +603-6206 3883
E-mail: segar@areta.com.my
Website: www.areta.com.my
Contact Person: Mr Rajasegaran Bungara Naidu
Business: Energy services and manufacturing of EMS gateway & system.

MS Engineers Sdn Bhd
No. 32, Lorong Sanggul 1E, Bandar Puteri,
41200 Klang, Selangor Darul Ehsan.
Tel: +603-5167 3212
E-mail: sales@mscorporates.com
Website: https://www.mscorporates.com
Contact Person: Mr Mahathevan S. Arumugam
Business: Engineering services.

Sinetek Engineering Sdn Bhd
No. 21-1, Jalan Bachang Jaya 1,
Taman Bachang Jaya, Jalan Tun Fatimah,
75250 Melaka.
Tel: +606-289 9939
E-mail: enquiry.sinetek@gmail.com
Contact Person: Mr Chong Teck Siam
Business: M&E contractor.

Awbros International Sdn Bhd
No. 18-03, Menara K1, No. 1, Lorong 3/137C,
Off Jalan Klang Lama, 58200 Kuala Lumpur.
Tel: +6011-2666 6520
E-mail: alvin@awbros.com.my
Website: www.awbros.com.my
Contact Person: Mr Alvin Aw
Business: Commercial LED lighting.

Parameswaran A/L Subramaniam
No. 46, Jalan BP 11/3, Bandar Bukit Puchong 2,
47100 Puchong, Selangor Darul Ehsan.
Tel: +603-8068 7125
E-mail: ramesh.ctrm@gmail.com
Business: Electronics & aerospace.

Wan Muhammad Asyraf Bin Wan Mohd Zamani
No. 15, Jalan Rajawali, Kg. Pengkalan Pegoh,
31500 Lahat, Perak.
Tel: +603-5510 0461
E-mail: wanmasyraf89@gmail.com
Business: Testing, inspection & certification.

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BS 31 CLASS B (SCREWED) / MANUFACTURER'S STANDARD

NOMINAL SIZE	OUTSIDE DIAMETER				WALL THICKNESS				CALCULATED WEIGHT WITH COUPLER			NUMBERS OF THREADS	LENGTH OF THREADS			
	MINIMUM		MAXIMUM		MINIMUM		MAXIMUM						MINIMUM		MAXIMUM	
in	mm	in	mm	in	mm	in	mm	in	kg/m	kg/ft	lb/ft	PER INCH	mm	in	mm	in
¾	18.76	0.7387	19.05	0.7500	1.52	0.060	1.63	0.064	0.713	0.217	0.479	16	12.70	0.5000	14.29	0.5625
1	25.11	0.9887	25.40	1.0000	1.52	0.060	1.63	0.064	0.972	0.296	0.653	16	15.88	0.6250	17.46	0.6875
1 ¼	31.46	1.2387	31.75	1.2500	1.52	0.060	1.63	0.064	1.240	0.376	0.830	16	17.46	0.6875	19.05	0.7500
1 ½	37.80	1.4880	38.10	1.5000	1.73	0.068	1.83	0.072	1.680	0.511	1.130	14	19.05	0.7500	20.64	0.8125
2	50.50	1.9880	50.80	2.0000	1.93	0.076	2.03	0.080	2.510	0.765	1.690	14	22.23	0.8750	23.81	0.9375

MS 275 / BS 4568 CLASS 3 (SCREWED) / MANUFACTURER'S STANDARD

NORMINAL SIZE	OUTSIDE DIAMETER		WALL THICKNESS	CALCULATED WEIGHT WITH COUPLER		PITCH	LENGTH OF THREADS	
	MINIMUM	MAXIMUM		MINIMUM	MAXIMUM		MINIMUM	MAXIMUM
mm	mm	mm	mm	kg/m	kg/ft	mm	mm	mm
20	19.7	20.0	1.6 ± 0.15	0.643	0.783	1.5	13	15
25	24.6	25.0	1.6 ± 0.15	0.811	0.995	1.5	16	18
32	31.6	32.0	1.6 ± 0.15	1.069	1.301	1.5	18	20

MS IEC 61386-1 / MS 61386-21 CONDUIT SYSTEMS FOR CABLE MANAGEMENT

NORMINAL SIZE	OUTSIDE DIAMETER		INSIDE DIAMETER	EXTERNAL THREAD LENGTHS
	MINIMUM	MAXIMUM	MINIMUM	MINIMUM
mm	mm	mm	mm	mm
20	19.7	20.0	16.2	14.0
25	24.6	25.0	21.1	17.0

Advantages :

- Made of hot-dip galvanised steel with weld zone zinc coating restored
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- Inside bead minimized to enable easy wire pulling
- Come with any colour as per requirement


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08000 Sungai Petani, Kedah Darul Aman, Malaysia
Tel : 04-444 5178 Fax : 04-440 0521
Sales : Mr. Yeap K.L (012-431 2393)
RND Department : Mr. Tan S.M (012-538 7746)
Website: www.kyodopipe.com

CKL Electrical Sdn Bhd
Lot 2677-B, Kampung Baru Sg. Buloh,
47000 Sg. Buloh, Selangor Darul Ehsan.
Tel: +603-6151 4332
E-mail: info@lampros.com.my
Website: www.lampros.com.my
Contact Person: Mr Chan Kok Lean
Business: Light & electrical parts supply.

Worktime Engineering Sdn Bhd
Block D, 22-3-2, Jalan 2/101C,
Cheras Business Centre, 56100 Kuala Lumpur.
Tel: +603-9133 8818
E-mail: contract@theworktime.com
Contact Person: Pn. Sainul Haizan Binti Baharudin
Business: Contractors for installation of electrical cable, electrical infra and wiring works.

Jigs Tech Automation Sdn Bhd
No. 12, Jalan TPP 5/2, Taman Perindustrian Puchong,
47100 Puchong, Selangor Darul Ehsan.
Tel: +603-8061 5421
E-mail: enquiry@jigstech.com.my
Website: www.jigstech.com.my
Contact Person: Mr Keiichiro Saito
Business: Engineering - automation machines with electronics components.

CEE Industries Sdn Bhd
No. 25, Jalan 22/5, Seksyen 22,
40300 Shah Alam, Selangor Darul Ehsan.
Tel: +603-5103 9538 / 5103 5538 Fax: +603-5103 7466
E-mail: enquiry@cee.com.my
Website: www.cee.com.my
Contact Person: Mr Ryan Chong
Business: Manufacturer of cable management systems, steel conduits and accessories.

Solaroo RE Sdn Bhd
Units 3A, 5 & 6, Cubic Space No. 6, Jalan Teknologi 3/4,
Taman Sains Selangor 1, Kota Damansara,
47810 Petaling Jaya, Selangor Darul Ehsan.
Tel: +603-2300 8010 Fax: +603-9235 1020
E-mail: see@pekatgroup.com
Website: www.pekat.com.my
Contact Person: Mr See Heng Chun
Business: Operation of generation facilities that produce electric energy.

Mega Kabel Sdn Bhd
No. 2 & 4, Jalan Mahir 5,
Taman Perindustrian Cemerlang, 81800 Ulu Tiram, Johor.
Tel: +607- 861 1999 Fax: +607- 861 9888, 863 2092
E-mail: melvinyong@megakabel.com.my/
megakabel@megakabel.com.my
Website: www.megakabel.com.my
Contact Person: Mr Melvin Yong
Business: Cables manufacturer.

Energycomms Engineering Sdn Bhd
No. 23, Jalan BK 4/6C, Bandar Kinrara 4,
47180 Puchong, Selangor Darul Ehsan.
Tel: +6019-585 0019
E-mail: ir.praba@gmail.com
Website: http://energycomms.com
Contact Person: Ir. T. Prabakaran Rajah
Business: Facilitate renewable energy and electric vehicle charging infrastructure projects.

Ecoscience International Berhad
PLO 555, Jalan Keluli 8, Pasir Gudang Industrial Estate,
81700 Pasir Gudang, Johor Bahru.
Tel: +607-255 3126 Fax: +607-255 4558
E-mail: jsthing@ecoscience.com.my
Website: https://ecosciencegroup.com/
Contact Person: Mr Thing Jin Suan
Business: M&E works, non-chemical water treatment equipment, fabrication of equipment and construction services.

Samaiden Sdn Bhd
No. 7, Lorong Teknologi 3/4A, Nouvelle Industrial Park 2,
Taman Sains Selangor 1, Kota Damansara,
47810 Petaling Jaya, Selangor Darul Ehsan.
Tel: +603-6150 7941 Fax: +603-6150 6567
E-mail: project@samaiden.com.my
Website: www.samaiden.com.my
Contact Person: Ir. Chow Pui Hee
Business: Clean energy services and solutions provider.

Jireh Automation Sdn Bhd
No. 3, Jalan Bukit Badung 26/4,
Hicom Industrial Estate, Section 26, 40400 Shah Alam,
Selangor Darul Ehsan.
Tel: +603-5103 4789
E-mail: sean.ng@jirehautomation.com.my
Website: http://jirehautomation.com.my
Contact Person: Mr Sean Ng
Business: Industrial control & automation services.

Tamura Electronics (M) Sdn Bhd
No. 2,Jalan Halba 16/16, Seksyen 16,
40200 Shah Alam, Selangor Darul Ehsan.
Tel: +603-5525 6000
E-mail: enquiry@tamura.com.my
Website: www.tamura.com.my
Contact Person: Mr Heng Teong Wei
Business: Low voltage transformer manufacturer.

Unique Fire Industry Sdn Bhd
No. 9, Jalan Anggerik Mokara 31/55, Kota Kemuning,
40460 Shah Alam, Selangor Darul Ehsan.
Tel: +603-5131 1226
E-mail: enquiries@uniquefire.com
Contact Person: Mr Ryan Liew Kang Yee
Business: Manufacturing assembly, manufacture and distribution of active fire protection systems, equipment and accessories.

OMH Electrical Works Sdn Bhd
No. 63-1, Jalan Equine 10F, Taman Equine,
43300 Seri Kembangan, Selangor Darul Ehsan.
Tel: +603-9546 9595
E-mail: omhelectricalworkssb@gmail.com
Contact Person: Mr Oh Mun Hoe (Ivan)
Business: M&E contractor.

Muhammad Ashiq Marecan Bin Hamid Marecan
Blok 22-1-14, Jalan Midah 8A,
Taman Midah Ria, Cheras,
56000 Kuala Lumpur.
Tel: +6012-642 2554
E-mail: ashiqmarecan786@yahoo.com
Business: BIM engineer.

Lo Wei Haw
No. 35, Jalan Baru 2, Taman Bukit Kajang Baru,
43300 Kajang, Selangor Darul Ehsan.
Tel: +6011-3645 5190
E-mail: weihaw@live.com.my
Business: Engineer.

Mok Kin Wah
No. 16, Jalan 9/13, Taman Bukit Mewah Fasa 9,
43000 Kajang, Selangor Darul Ehsan.
Tel: +603-8739 2119
E-mail: kinwah0917@gmail.com / mokkw@tnb.com.my
Business: Electrical chargeman.

Chew Teik Siang
No. 8, Jalan Anggerik Malaxis 31/173,
Kota Kemuning, 40460 Shah Alam, Selangor Darul Ehsan.
Tel: +6016-225 5025
E-mail: adamscycle@gmail.com
Business: Solar photovoltaic system.

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Co. No.:200301016242 (618662-M)

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Mouth-Savouring Durian Outing Trip

The Chairman of TEEAM Trading Group who is also the Vice President of TEEAM, Ir. Dr. Ng Kok Chiang, initiated a fun-filled Durian Outing for passionate durian lovers, to Duriostay Farm on 26 August 2023 in Bentong, Selangor. Some 33 TEEAM members and their families joyfully joined the Durian Outing family experience to indulge in the delectable and aromatic plus much sought after Musang King and XO durian species! Duriostay Farm is a serene and beautiful idyllic retreat nestled in the durian farm and has well-furnished resort accommodation for over-night stay.

After thoroughly savouring every bite of the King of Fruits, the delighted entourage visited the famous “Tau Fu Pok” (fried bean curd) outlet in Bentong Avenue on their way back home. The outlet is very famous for its fried bean curd, which has very spongy texture. All went home fully satisfied with loads of packed-durians and fried bean curds!

Snapshots of the Mouth-Savouring Durian Outing Trip

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Snapshots of the Mouth-Savouring Durian Outing Trip






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No 77, Jalan TPK 2/8, Taman Perindustrian Kinrara, Sek 2, 47180 Puchong, Selangor Dahrul Ehsan.

Metaltech & Automex 2023

TEEAM extended unwavering support to Metaltech & Automex 2023, Malaysia's leading and largest exhibition for Machine Tools, Metalworking and Automation Technology. With over 1,500 participating companies and brands showcasing their latest innovations and solutions, including five exclusive National Pavilions from Germany, China, Korea, Singapore and Taiwan, the enthusiastic visitors, trade buyers and exhibitors experienced a week filled with exciting exploration and abundant opportunities. Organised by Informa Markets, the exhibition was held from 31 May - 3 June 2023 at MITEC Kuala Lumpur.

TEEAM's booth at Metaltech & Automex 2023.

A huge supportive delegation from TEEAM and member associations of MEIF - SAMENTA, MATA, MSTMA, MAIA and MMCOA attended the Opening Ceremony on 1 June 2023, and thereafter visited participating member associations' booths as well as their member companies' booths. The event was graced by Guest-of-Honour, Puan Sharimahton binti Mat Saleh, the Deputy CEO of MATRADE. TEEAM was represented by Ir. Chang Yew Cheong (President), Ts. Lim Sai Seong (Deputy President), Dr. Siew Choon Thye (Immediate Past President), Mr. Suresh Kumar Gorasia (Past President), Mr. Rajasegaran Naidu (Council Member) and Ms. Winnie Khong (Executive Secretary).

The response from industry professionals was overwhelming. Everyone had a fruitful and productive experience at the cutting-edge world of Metaltech & Automex 2023!

Snapshots at the Metaltech & Automex 2023

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Remarks : IFC-Inside Front Cover
IBC-Inside Back Cover
OBC-Outside Back Cover

Wire & Tube Southeast Asia 2023

TEEAM President, Ir. Chang Yew Cheong, attended Wire & Tube Southeast Asia 2023 as an invited VIP Guest of Messe Düsseldorf Asia. The Exhibition was held in conjunction with GIFA & METEC Southeast Asia, PACK PRINT International, CorruTec ASIA 2023 and T-PLAS 2023, from 20-22 Sept 2023 at BITEC, Bangkok, Thailand. The Wire and Tube Exhibition products showcase included cables, fabrication machine and accessories, tube assembly and fabrication machine, etc. Held alongside the exhibition was the IWMA Conference themed "Towards a Sustainable Future -- Transforming Challenges into Opportunities", which was jointly organised by The International Wire and Machinery Association (IWMA) and Messe Düsseldorf Asia. A big thank you to Messe Düsseldorf Asia for their kind invitation and warm hospitality!

The next edition of Wire & Tube Southeast Asia will return in 2025, from September 17 to 19 at BITEC, Bangkok, Thailand.

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